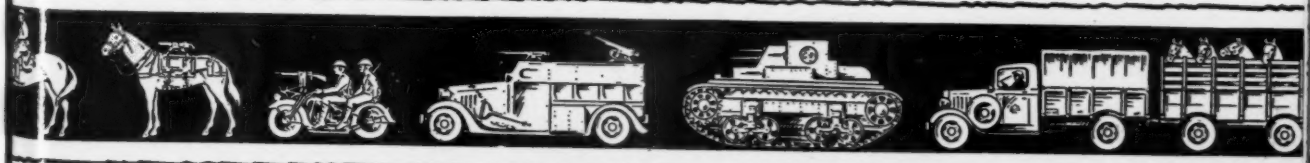
THE CAVALRY JOURNAL



JANUARY-FEBRUARY, 1942

Cavalry Combat

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Marcelino García Barragán
Director del Colegio Militar

Popotla, D. F.
October 13, 1941

The U. S. Cavalry Association
1624 H Street, N. W.
Washington, D. C.

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Hoping that you will be kind enough to give us permission to translate and publish the book for our officers and cadets, Gentlemen, I am glad to remain,

Very truly yours,

(Signed) Marcelino Garcia Barragan
Director
Military Academy of Mexico.

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Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and the solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

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Foreign Ho

One can readily foresee the extensive utilization of the horse and the mule in the present conflict. Animal transportation knows no end and goes on forever. The power of an army as a striking force depends on its maneuverability and its mobility, a mobility that is not confined to favorable conditions, a mobility that must be maintained over mangled terrain, shell-torn wastes, and under the worst conditions. From time immemorial, in peace and strife, the horse and mule have given service to man. The horse and mule are a military necessity. The facts are known, concrete, and beyond the necessity of theorizing. The tank, the tractor, the truck, the airplane have complicated war's previous complexities. They have not displaced the horse any more than they have displaced the foot soldier. They have simply been added to the established requirements. All are necessary!

German Caval ia: Re

- - SHOWING ORGANIZATIO M C

...se Cavalry

...Cavalry: Rearguard Action.

A tabulation of the returned "proxy" cards for our annual meeting indicated that the majority of requests by our members was for more information about foreign horse cavalry. In compliance with these requests, The Cavalry Journal, to supplement those photos already available, purchased the photos herein presented from commercial photo agencies in New York; i.e., Acme Newspictures, Inc.; Black Star; European Picture Service; Press Association, Inc.; and Sovfoto. Usually, photographs of personnel and animals, equipment and terrain tell a graphic story better than words.

For ethical reasons the following text in support of the accompanying pictures, in substance, was not released for publication prior to the declaration of war against the Axis powers.

...OMOUNTS, EQUIPMENT, ETC.

German Cavalry

TODAY, Germany maintains approximately seventeen regiments of horse cavalry, plus various other mounted combat units.

All German forces possessing great strategical mobility have been grouped under the heading of Schnellen Truppen. The Mobile Troops include: Cavalry Regiments; Tank Regiments; Motorized Infantry Regiments of the Armored Divisions; Corps Reconnaissance Regiments; Mechanized Reconnaissance Battalions; Motorcycle Battalions; Cyclist Battalions; Divisional Antitank Battalions for all types of Divisions.

Germany has two distinct types of cavalry regiment, each with a title of its own. The "Reiter" regiment approximates the American cavalry in organization and purpose. They are organized and trained to engage in combat as homogeneous units. German Cavalry Doctrine is an almost parallel of our own. (See The CAVALRY JOURNAL, Jan.-Feb., 1941.) The other type known as "Kavallerie" regiment, operates as a unit only occasionally, and are so organized as to be divisible and set up four divisional reconnaissance battalions (Abteilungen) for normal attachment by the corps to which they belong.

The Germans have a Corps Reconnaissance Regiment which is virtually a small force of all arms and can be split up to furnish four reconnaissance squadrons, horse-and-mechanized, for attachment to the infantry divisions of the line of the Army Corps.

The Reconnaissance Battalion of the German Panzer Division includes a Cavalry Platoon. (Portéed?)

* * *

Although there is no organic divisional reconnaissance unit, reconnaissance is highly developed in the German Division. Distant reconnaissance is performed by the Corps Motorized Reconnaissance Battalion either acting as a unit under corps control or with a detachment under division control. For close-in reconnaissance, the reconnaissance detachment of the Corps Cavalry Regiment is normally attached to the division.

Corps Reconnaissance Detachment

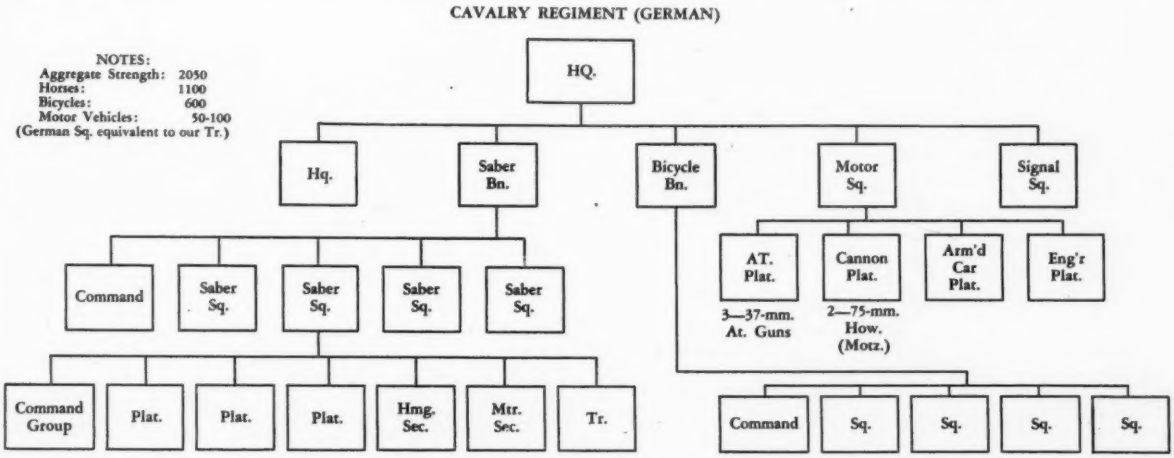
	Officers	Enlisted Men	
Headquarters	3	15	
Signal Platoon (mot.)...	1	35	
Cavalry Troop	5	196	
Bicycle Troop	4	140	
TOTAL	13	386	399

German Reconnaissance Elements

Difficulties of German supply in Russia. Here, an obsolete light tank is being used to bring up gasoline. Deep mud in the country roads, and heavy rains, have prevented motorized columns from moving as fast as they did in France.

Method of Operation of Partly Motorized Reconnaissance Units

The partly motorized reconnaissance unit carries out tactical reconnaissance for an infantry division. The strength of mounted patrols varies from a section to a troop. The reconnaissance unit is made up of elements which move at different speeds. The aim must be, in spite of these differences, to bring the mounted and cyclist squadrons forward in such a way that on contact with the enemy unified command of the reconnaissance unit is possible. If the situation requires it, the commander of the reconnaissance unit does not hesitate to push on with the mounted squadron if the country is impassable for motor vehicles. Separation from the wireless sets and the necessity of relying entirely on mounted orderlies and despatch riders for the transmission of messages, must be reckoned with. Mounted men, cyclists and motorcyclists can cross streams rapidly in pneumatic boats. The reconnaissance unit has two large and two small pneumatic boats



THOROUGHTRA

in the engineer stores wagon of the ammunition and stores echelon. These boats are manned by the engineers in the mounted and cyclist squadrons.

The mounted platoon of the German Infantry Regiment is employed chiefly to furnish patrols of greater mobility than the regiment which may be sent out either for reconnaissance or for security, or both. During a march this platoon ordinarily furnishes a mounted point of eight men which advances from rise to rise while the remainder rides near enough to the regimental commander to be readily available for patrol or messenger service. Rates of march: on patrol, 8 km (5 miles) per hour; as messengers, 10 km per hour. Personnel: 1 officer and 29 enlisted men.

LIGHT TRAINING

A Parallel

If one views the present German-Russian situation as a parallel to that of Napoleon's in 1812, one should remember that Napoleon's defeat came at a time when his cavalry was depleted to one-fourteenth of the strength of his infantry. His deficiency in light cavalry, more than weather conditions or any other cause, contributed to his downfall.

The German Army now is weak in light cavalry and, therefore was at a disadvantage in coping with the vast number of Russian Cossack divisions and mounted guerrilla units that have harassed the German flanks and lines of communications.

Italian Cavalry

At present the Cavalry Arm is composed of thirteen Horse Cavalry Regiments and three squadrons of light tanks, the latter having sufficient that one troop may be attached to a regiment of cavalry.

ITALY — CAVALRY REGIMENT (War Strength (a) January, 1941)

UNITS			ANIMALS		ARMS		MEANS OF TRANSPORT				
	Officers	Enlisted men	Saddle horses	Pack animals	Machine rifles	Machine guns	Bicycles	Motor-cycles	Light tanks	Auto-mobiles	Cargo trucks
Regimental Hq & Hq Troop (2 Plat)..	12	110	66	14			10	12			15
1st Sqdr Hq (b)	2	10	10	1			3				
1st Troop (c)											
Hq Platoon (d)	1	32	27				3				
1st Platoon (3 squads) (e)	1	36	37		3						
2d Platoon	1	36	37		3						
3d Platoon	1	36	37		3						
Total 1st Troop	4	140	138		9		3				
Total 2d Troop	4	140	138		9		3				
Total 1st Squadron	10	290	286	1	18		9				
Total 2d Squadron	10	290	286	1	18		9				
M.G. Troop											
4 Platoons (3 squads each).....	5	120	120	36		12	3				
TOTAL REGIMENT	37	810	758	52	36	12	31	12			15

NOTES:

(a) There are generally two squadrons to the regiment. A light tank troop was assigned to each cavalry regiment, but recently all light tank troops with cavalry regiments have been withdrawn and formed into tank squadrons with the Celeri Divisions. It is understood that when improvements to the present light tanks are made that the light tank troop will be returned to the cavalry regiment.
(b) The Squadron may consist of two cavalry troops or one cavalry troop and one machine gun troop.
(c) The Cavalry Troop consists of a headquarters platoon and 3 rifle platoons.
(d) The headquarters platoon is made up of the necessary personnel for the administrative functioning of the troop, internal liaison of the troop, other necessary personnel such as horseshoer, medical personnel, student armorers, cooks and orderlies.
(e) The Cavalry squad consists of:
1 machine rifle Model 30
12 men
1 corporal (squad leader); 1 gunner; 1 assistant gunner; 1 scout; 1 sapper; 1 ammunition carrier; 6 privates.

ITALY, JANUARY, 1941 — ANIMAL TRANSPORTATION SUPPLY AND TRANSPORT UNITS (War Strength)

UNITS			ANIMALS			MEANS OF TRANSPORT		
	Officers	Enlisted men	Saddle horses	Pack animals	Draft animals	Bicycles	Motor tricycles	Wagons
Pack Transportation Section	1	120	1	100				
Wagon Section	1	140	1		120	1	9	60
Mountain Pack Transport Section.	1	120	1	100				
Mountain Pack Transportation Co. (3 sections)	6	410	6	312	8	1		4
Wagon & Pack Unit in Army Corps	1(a)		1(a)					
Wagon Section	1		1		124	1		62
Pack Section	1		1	100		1		
Total Unit	3	295	3	100	124	2		62
Wagon & Pack Units in Army Corps (b) (3 companies)	12	925	12	300	392	8		192
Wagon & Pack Units in the Div. (c)	16	840	16	624	20	4		10
Wagon & Pack Unit	1(a)		1(a)					
2 Wagon Sections	2		2		244	2		122
1 Pack Section	1		1	100		1		
Total of Unit	4	435	4	100	244	3		122
Army Wagon Squadron (d)	12	985	12		752	11		372

NOTES:

(a) Commanding officer of unit.
(b) With as many units as there are divisions in the Army Corps.
(c) With as many units as there are regiments in the division.
(d) With as many companies as there are Army Corps in the Army: Two wagon sections in each company.

Italian Cavalry marches to port of embarkation.

Italian Cavalry ready to be taken aboard a transport sailing from Naples.

Japanese Cavalry

THE most recent confirmed information relative to Japanese cavalry is that they have twenty-five regiments—eight regiments of non-divisional cavalry, organized into brigades; and seventeen regiments of divisional cavalry. Reliable but unconfirmed information, however, indicates that Japan now has approximately sixty-one infantry divisions and that the divisional cavalry has correspondingly been increased to sixty-one divisional cavalry regiments. Moreover, recent Russian translations state that the Japanese expect to build up large forces of cavalry, heavily reinforced, to be used as independent cavalry.

The cavalry regiment, infantry division, consists of a headquarters, two squadrons, train, and probably a 2-gun section of 37-mm. rapid fire antitank guns.

The following table shows the estimated organization:

		1 squadron			1 squadron		
	Headquarters	Communication	Antiaircraft machine gun—antitank	Heavy machine gun	1 troop	3 troops	Total
Total commissioned	7	2	3	3	4	12	27
Total enlisted	8	64	66	49	99	297	484
Aggregate	15	66	69	52	103	309	511
Horses, riding and pack	13	66	76	56	110	330	541
Light Machine guns	...	...	...	...	4	12	12
Heavy machine guns	...	...	...	4	...	...	4
Antiaircraft machine guns	...	...	2	...	...	...	2
Carbines, cavalry	...	40	40	20	99	297	397
Sabers	12	66	69	52	103	309	508
Pistols	6	20	22	10	7	21	79
Guns, 37-mm. antitank	...	...	2	...	...	...	2
Radios	...	3	...	...	...	...	3

NOTES:

1. Weapons of some cavalry regiments include 12 grenade dischargers.
2. Japanese are discussing the inclusion of a reconnaissance troop in the organization of the divisional cavalry regiment.

The cavalry regiment, pack division, organization differs from the cavalry regiment, infantry division, only in its field train, which consists of the following: 115 enlisted men; 79 horses, pack and riding; one day's ration and forage.

The non-divisional cavalry regiment consisting of a headquarters, 4 troops, and a machine gun troop is comprised of 788 officers and men; 884 horses, riding and pack; 680 carbines; 6 light machine guns; and 8 heavy machine guns. (This armament probably has been increased.) This type of regiment is found in the independent cavalry brigades. Independent cavalry brigades include a brigade headquarters, one battery horse or pack artillery, armored car troop and a detachment of engineers.

Saber: The saber is a slightly curved weapon about 36 inches over all. It is carried by the cavalry, and officers and most noncommissioned officers of other arms.

Lance: The lance is used only for ceremonies and is carried only by the guards cavalry regiment.

Carbine and bayonet: The cavalry carbine is model 1911, caliber 6.5-mm. (0.256 inches) and differs from the infantry rifle only in having a shorter barrel. The weight is about eight pounds. A double-edged bayonet is permanently attached to the rifle, folding under the barrel when not in use. Its total length over all is 51½ inches and it is sighted to 2,000 meters (2,187.2 yards). Side arms also are carried by the cavalry.

Light machine gun: The cavalry uses the same model light machine gun that the infantry uses: Caliber 6.5-mm. In pack, the gun is slung horizontally with the butt towards the croup well up on the near side of the pack. The tool and spare parts box is slung below the gun. Two ammunition boxes, each containing 400 rounds, are loaded one above the other on the off side of the packsaddle. The encased, folded tripod is either packed on top of the packsaddle or suspended from the shoulder of one of the ammunition carriers. About 45 seconds are required to go into action from pack and about the same length of time is necessary to repack.

Heavy machine gun, model 92 (1932) Caliber 6.5-mm. (also used by infantry): The gun and certain accessories are carried on the pack in the following manner: the gun is slung horizontally, muzzle to the rear on the near side; two boxes of ammunition, each containing 15 clips of 30 rounds each (450 rounds), are loaded on each side of the packsaddle of the ammunition pack horse; spare parts and the tool box are carried below the tripod on the off side of the gun pack.

An antiaircraft adapter, about 24 inches long and weighing less than 10 pounds is inserted between the gun and bipod, when the gun is to be used against hostile aircraft. At other times one of the ammunition carriers slings it from his shoulder in a case.

Antiaircraft sights are carried in a box by the squad and attached to the gun.

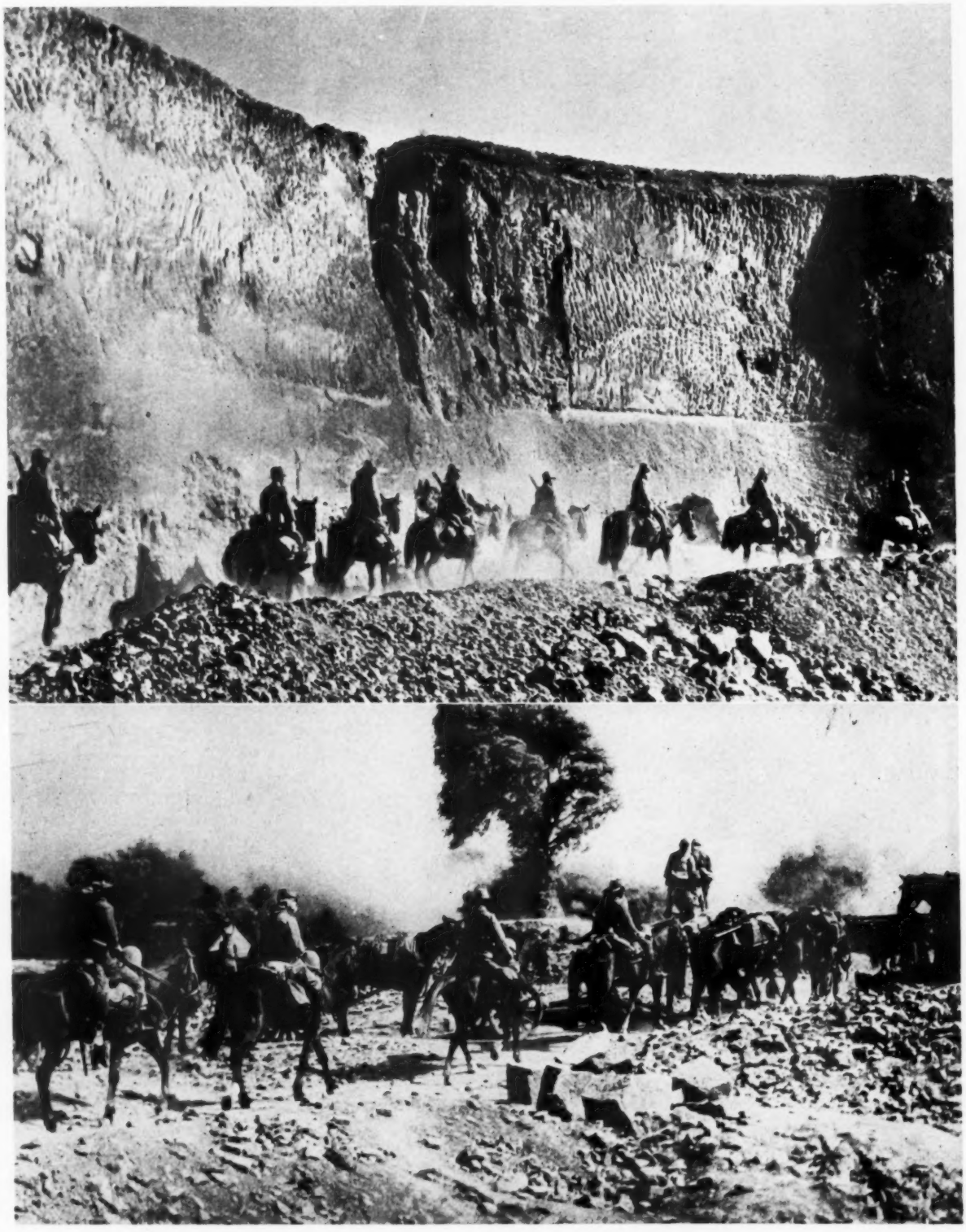
Other transport methods: (1) The periscopic sight is carried by the squad leader. It can be attached to the gun for direct aiming, used attached to the panoramic sight, or used as a periscopic field glass when detached. It is a 6-power glass and has a 100-mil horizontal scale and a 70-mil vertical scale, both graduated into 5-mil units.

(2) The panoramic sight is carried by one of the ammunition carriers. It is equipped with range, traversing, and site scales, and leveling bubbles.

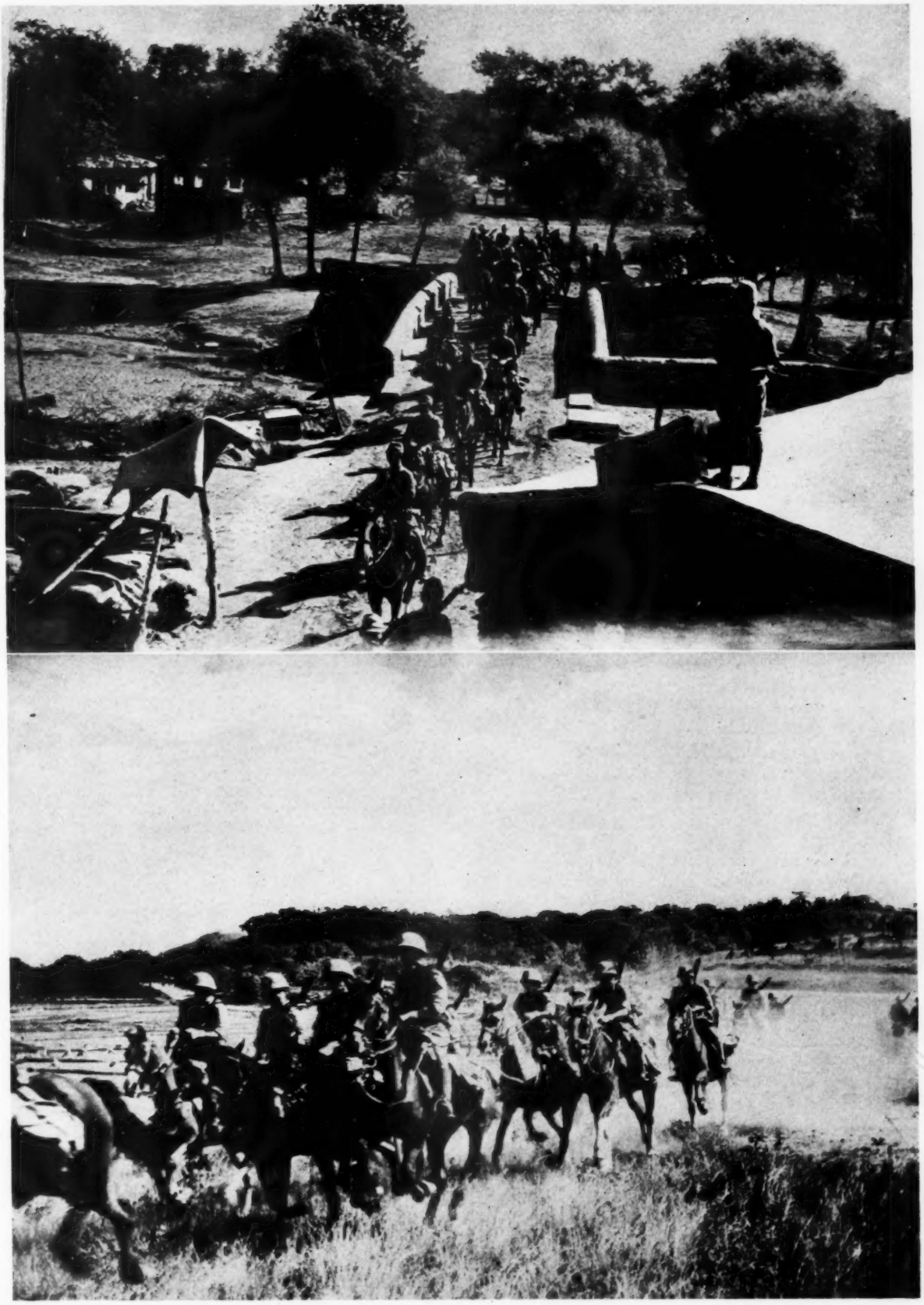
(3) The flash hider is carried in the spare parts box.

Cavalry Packsaddle: The packsaddle used by the Japanese cavalry is similar in basic design to the Phillips

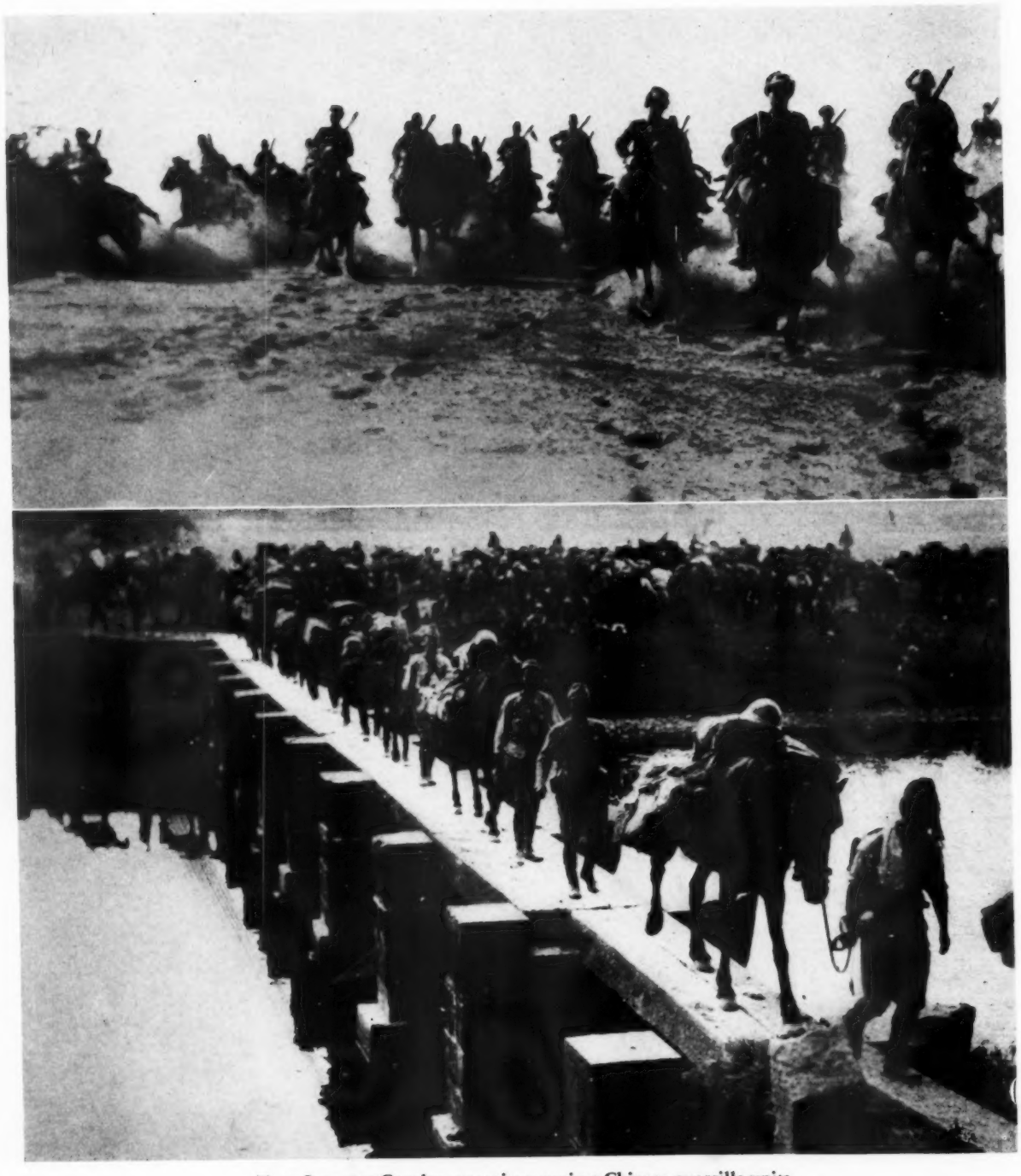
Top: The Cavalry embarks. *Bottom:* The main roads are searched for hidden land mines



Top: Japanese Cavalrymen penetrate the rugged and barren mountains of Shansi Province, China. *Bottom:* Japanese Cavalry is well mounted



Top: Japanese Cavalry operations in the Peiping-Suiyuan Sector, China. *Bottom:* A unit of Japanese Cavalry advances on a "mopping up" operation in South China



Top: **Japanese Cavalry operations against Chinese guerrilla units are continuous.** ***Bottom:*** **The trails are where one finds them**

packsaddle used in our service, and consists of a steel frame to which the necessary pads and hangers are attached. Hangers are adapted to the load intended to be packed.

Tactics: In general, the Japanese doctrine with reference to the use of cavalry is very much like our own. The following excerpt, however, from one of their regulations may be of interest: "Modern cavalry not only can defend itself successfully from motorized-mechanized units of the enemy, but it can crush them."

* * *

The following extract from a report relative to general characteristics of Japanese tactics, rendered about

the time Japan began its undeclared war on China might be of value.

"To the exclusion of matters of minor technique, the general characteristics of Japanese tactics may be summarized as follows:

"The continuous offensive is the basis of Japanese tactical and spiritual training. The offensive is sought under condition of combat inferiority, which indicates a lack of appreciation of modern fire power and an overconfidence in the mystic virtue of Japanese spirit (seishin) to overcome material obstacles.

"The meeting engagement is the preferred form of offensive action. Its conduct is energetic and rapid but is apt to be uncoördinated with a piecemeal commitment of troops.

"The envelopment is the preferred type of maneuver, although frontal attacks are common in practice. As executed, most envelopments are flat and close-in with little or no interval between frontal and enveloping attacks.

"The effect of envelopment is usually sought by an advance in parallel columns with a view to overlapping one or both of the hostile flanks. The desire to stage a preconceived maneuver often leads to premature development.

"Japanese advance guards are unusually strong in infantry, particularly in approaching a meeting engagement.

"The Japanese Army does not appreciate the difficulties of the attack of a position and does not have the necessary weapons to undertake such attacks except on a narrow front.

"The Japanese artillery is deficient in number, caliber, and technical training. It is untrained in modern gunnery methods such as use of air photos, night registration, and fire of unobserved concentrations. It has no carefully thought-out plan for liaison with the infantry.

"The Japanese division is carefully trained in night attacks, believes in them, and can be expected to execute them frequently in war.

"The Japanese division frequently sends forward an advance detachment amounting to from a third to a half of its strength to precede the main body and facilitate the mission of the division, whether this be offensive or defensive.

"The Japanese dislike the defensive. When forced to assume it, commanders retain the idea of a quick return to the offensive. They will counterattack on the slightest provocation at all echelons of command.

"A Japanese defensive position tends to lack depth. The systems of fire in front of and within the position are often imperfectly organized.

"The Japanese appreciate the importance of secrecy and deception. No maneuver is ever attempted without including in the plan some device to deceive the enemy and conceal the true intention of the commander. (Sneak-tactics are their specialty!)

"*Weak points*: Many of the weak points of Japanese tactics noted, result from the fact that the division is under-armed by Western standards of comparison, but the Japanese are making great efforts to correct this deficiency. They are spending large sums on aviation, mechanization, and motorization. They have increased the strength of the division artillery. Division antigas and antitank units are being organized. The division which started the China incident will not be the division of a future war. Increased material means will facilitate the task of Japanese tactics.

"*Fighting efficiency*: Tactics are without meaning unless studied in relation to the human agent who will apply them in battle. This report has avoided excursions into the field of Japanese military psychology and national characteristics; however, it should be read with a constant eye to the nature of the Japanese Army for which these tactics are designed. It is an army easily misjudged by the foreign officer who sees first of all its straggling columns, slovenly dress, and unmilitary bearing. Just as there is no glitter to its accouterments, there is little theoretical excellence to recommend its tactics; but it is an army which excels in durability and performance. In the same way that its infantry 'straggles' 30 miles a day and arrives at the destination on time and with surprisingly few casualties, its command and staff can be counted on to evolve plans and orders which, without being brilliant tactical combinations, are practical and workable schemes for getting a maximum performance from the Japanese soldier. Furthermore, the Japanese Army which fought with bows and arrows in 1870 is thoroughly capable of learning from its mistakes and advancing with the new developments of warfare. While its swaggering self-confidence may receive some rude jolts in a major war, it is a rugged army fired with a devotion to duty and a narrow patriotism which make it a dangerous foe on a field of its own choosing."

Chemical Warfare Service

A modern chemical warfare research establishment exists in the vicinity of Tokyo. There are also a chemical manufacturing plant and a chemical warfare school for the training of selected officers of all arms except military police. Graduates of this school give chemical warfare training throughout the army. It is definitely known that mustard gas, lewisite, phosgene, chloracetophenone and certain of the smoke materials are being manufactured at army laboratories and arsenals. Commercial plants are known to have manufactured phosgene and to be engaged in making raw materials for the production of mustard and tear gas.

Vast Soviet Cavalry Armies Forming

*By Colonel General Gorodovikov**

Their *esprit de corps* is magnificent. We will have more about them in subsequent issues of *The Cavalry Journal*

MOSCOW, December 22, *Pravda:* The geographical peculiarities of our country, the historical traditions of the Russian Army, in which mounted Cossack troops have always played an outstanding part, the love for the horse inherent in Cossacks, Kirghizians, Kazakhs, Kalmyks, Bashkirs and other peoples of the Soviet Union—all this shows that cavalry will always hold an important place in the Red Army.

The Germans encountered Soviet cavalry at Tula, at Moscow, at Rostov, and felt the strength of its blows.

It has been shown that the tank is not very dangerous for the cavalryman if he can handle not only a blade, but a hand grenade, mortar and automatic arms, if he can fight on foot as well as on horseback.

The best evidence of our cavalry's achievements was the award of the Guards title to a number of cavalry units.

Powerful reserve cavalry armies are being trained in the rear and are preparing for decisive engagements with the enemy. An example is the unit commanded by Surikov. Its well-fed horses and the military bearing of the riders—who handle the most up-to-date weapons as well as sidearms—produce a splendid impression.

Units of this quality are being prepared for the front with great rapidity. One, commanded by Milerov, consists of men who are ardent horse lovers. In a short time this unit had brought its horses up to the standard of a regular cavalry unit, although it started with ordinary collective farm horses and had only a few weeks' training.

In addition to reserve units, voluntary Cossack forces are also taking up arms to fight the enemy.

The heroic traditions of the First Mounted Army, formed on Stalin's initiative, are still fresh among the Cossacks, who preserve their hereditary audacity and indomitable hatred for the Germans who have dared to encroach on Soviet soil. The Cossacks of the Don, Kuban and Terek are rising for war. The collective farmers of the northern Caucasus are taking up arms.

Veterans of Last World War Join Cossack Squadrons

Men who fought in previous wars and sabered not a few Germans in the war of 1914-18 are joining the ranks of the Cossack volunteer forces. They come with

*This datum was furnished by courtesy of the Embassy of the Union of Soviet Socialist Republics, Washington, D. C.

their own horses, their Cossack uniforms and their weapons. Collective farms provide them with their finest horses.

The Cossack volunteer forces include many former Red guerrillas and many veterans of the First Mounted Army. They are splendid cavalrymen, as much at home on horseback as on the ground. They receive new weapons and are taught the tactics of modern warfare and coöperation with other arms.

Every district of the Don and Kuban is training detachments for the Cossack volunteer force. They have their own local commanders and doctors, their own transport. They count in their ranks many commanders who are Civil War order bearers. This fast spreading movement shows what enormous untouched reserves Russia possesses.

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Crack Soviet Military School Turns Out New Officers

The following interview with the Commander of the Frunze Military Academy, one of the many advanced schools for Soviet army officers, was published in *Pravda* December 22d:

The war has imposed new tasks on the Academy, which has modified its program in conformity with war conditions. The length of the training period has been reduced, time is used more intensively, and secondary subjects have been abolished from the curriculum.

Special attention is being given to quick orientation and correct evaluation of the military situation and to operations against the *enemy's flanks and rear*. Our main object is to teach commanders of all arms to direct their troops in the midst of battle and in constantly shifting situations.

Much attention is given to enemy tactics, his strong and weak points, and to intelligence methods as applied against enemy tanks and air landing parties. Tactics of fighting at short range, which play an important part in modern warfare, are equally stressed. Red Army students are taught to handle not only modern Soviet weapons but also enemy weapons.

The Academy has already sent large contingents of trained officers to the front. A large part of the student body and of the faculty as they existed when the war began have been assigned to active duty. Some of them have already distinguished themselves in battle, including Major General Golubev, Major General Dovator, Hero of the Soviet Union Provalov, Hero of the Soviet Union Pogodin and others.

Despite the constantly growing demands of the front, new classes of students have successfully completed the Academy's course. Of the new students admitted, over 70 per cent have previously received university or technical education. The age of most of the students ranges between 20 and 35.

Additional Datum

As the result of the custom of adding captured artillery to cavalry units during the revolutionary wars, and the successful part played then by cavalry in rapid flanking operations, cavalry has been greatly increased and given as much fire power as motorized infantry, being armed with small and large caliber machine guns and 2 lb. mountain guns. Dismounted cavalry, so armed, alone successfully opposed the Japanese a few years ago in Manchuria. Cavalry predominates in all of the steppe and desert country throughout the southern U.S.S.R. from West to East.

The present Russian cavalry strength is estimated at one-half million. The Cossacks constitute most of the cavalry. They are geographically divided and known as Don, Siberian, Terek and Kuban. The latter, also known as Caucasian Cossacks, are recruited from twelve tribes and are the fiercest.

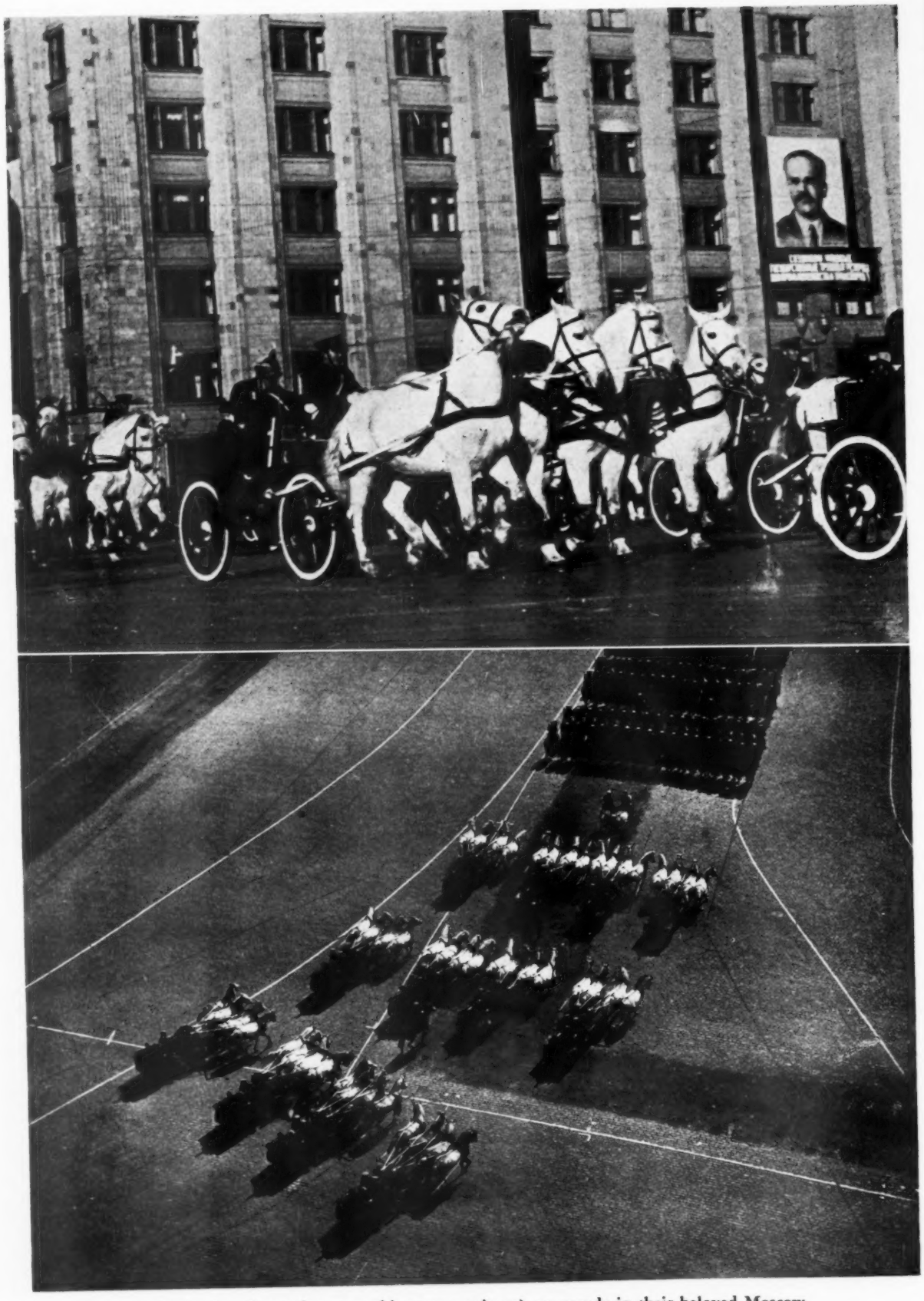
Cossack regiments attached to northern centers do not wear the Cossack uniform, appear like regular cavalry, which last may have slightly heavier horses as the government is operating stud farms. Cossack home bred horses are fairly light and not large. The Cossacks are armed with five-shot carbines, slightly curved sabers, and almost without exception have discarded lances.

Tachankas

"Tachankas," horse-drawn carriages mounting .50 caliber machine guns (see accompanying photographs), are attached to cavalry units. Harnessing four abreast is the outgrowth of the nationally used three horse tachanka (high wheeled rig). The extreme off and nigh horses can be cut loose if necessary. Military tachankas seat the gunners facing the gun breech.

Army tachankas originated during the revolutionary wars when two seated high wheeled carriages of that name, were used as gun mounts.

Tachankas also are used by irregulars or mounted guerrillas. The farm type with three big and fast horses, the center horse between shafts, is used in raids. The occupants use machine guns, hand grenades and German Mausers, carbines being scarce and rifles cumbersome. Irregulars are organized in units of ten men with sometimes ten units in a command. The element of surprise enters largely into their operations. Driving tachankas at full speed through enemy occupied towns and villages, machine gunning the while, and disappearing rapidly, is a favorite method of attack. When snow comes three horse sleighs are similarly used. Mounted irregulars use all kinds of horses, depending on locality and personal choice. (A recent news picture showed a tough looking horse smaller than a western cow pony.)



Tachankas (horse-drawn machine-gun carriages) on parade in their beloved Moscow

Soviet Turkestan: The Turkoman Camel Corps (Camel Cavalry) on the march.

CAVALRY—IN GENERAL

Cavalry leaders in a war of movement are more essential today than ever before in our history. The tactical principles have not changed with modern developments. It is the *methods* of cavalry that constantly are undergoing improvement affecting mainly the factors of time and space, armor and armament.

When an army advances to battle some mobile group, for the "mass," must perform those time-honored ground missions involving reconnaissance, security, offensive and defensive combat, exploitation, covering, or pursuit operations. Whether the horse—in saddle or pack, camel, elephant, the motorcycle, jeep, scout car, armored car, combat car, truck or portee trailer is used (any or all) is merely a means to the end of accomplishing cavalry missions. Animals and vehicles should be used wherever they are most effective. Whether it be by horse cavalry, mechanization, or both, getting the cavalry job done is the main idea—call it what one may.

Let us not be hidebound to terminology. The terrain, time element, and opposition indicate the mode of travel; the specific situation indicates the required type of combat. The respective equipment and organization should meet this requirement.

The catch phrase "Blitzkrieg," which seems to have captured popular civilian fancy, is not new to cavalrymen. Blitz tactics are normal cavalry tactics. Modern warfare emphasizes the need of well-balanced combat teams. Neither cavalry nor infantry nor the armored force can advance now without the proportionate supporting assistance of all of the other arms and services. For cavalry, highly mobile engineer and artillery support is essential. Combat aviation in support of ground troops has entered a new phase of importance. Effective coordinated teamplay, however, can be obtained only by actual practice in the development of technique. *We must pull together without prejudice.*

GENERAL HERR
On his private mount *Star Witness*, grandson of *Man o' War*

General Herr's Address*

Why Should the United States Lag Behind Other Great Powers in the Military Use of Animals?

INTRODUCTION

Mr. President and Members of the Association. I am glad to be here. It is gratifying to be with people who like the horse. I find many who are really hostile to this noble animal. Always I find in them other symptoms of unbalance.

I will talk to you briefly as follows:

FIRST, a survey of the comparative use of animals in the Russian, Japanese, German, and American armies, with more detailed comparison as regards German and American armies.

SECOND, I will discuss the present and probable future effect of mechanization and air on the use of animals in war.

THIRD, I will tell you what our American cavalry really is and how we hope to develop it to keep abreast changing conditions.

FOURTH, a few words concerning the influence of your association, of our remount service, and of mounted sports on the future of the horse.

FIFTH, conclusion.

1. *THE USE OF ANIMALS IN OUR OWN AND FOREIGN ARMIES.*

a. General Comparison.

All foreign armies except the English use animals in great numbers. I will consider only the greatest, Russia, Japan, and Germany, with special attention to the German as first in efficiency.

From the most reliable sources available, it appears that the Russian Army has more than 1,000,000 animals; the Japanese Army has more than 375,000; and the German Army includes, as a conservative estimate, more than 960,000 animals. The American Army has 50,000.

Breaking down these figures further, we find

	For Cavalry Use	*For Draft and Pack*
Russian Army	200,000[1]	800,000
Japanese Army	50,000[2]	325,000
German Army	50,000	910,000
American Army	25,000	12,000

NOTE: In remount depots and for administrative purposes, etc.—13,000.

b. Use of Animals in Our Own and German Armies.

As the German Army is the most efficient in the world, let us compare further the use of animals in the German and U. S. Armies.

For cavalry purposes, Germans 50,000—U. S. 25,000.

Although the Germans have but one cavalry division, while we have two, they use much more cavalry than we do for reconnaissance purposes. They have more corps cavalry regiments than we have, except that theirs are made up of bicycle squadrons and marching horse squadrons. I will show later how ours are constituted. They also have smaller horse groups, often a troop, as reconnaissance groups for their marching divisions. We have no horse reconnaissance groups with our marching divisions and small mechanized reconnaissance groups with only nine of our divisions. Eighteen of our marching divisions have no reconnaissance groups, either mechanized or horse. The Germans have a scouting platoon of 30 horsemen in each marching infantry regiment. We have none.

For artillery purposes, Germans 464,000—U. S. 11,000.

For draft and pack other than artillery, Germans 446,000—U. S. about 1,000.

Thus we see that by far the greatest discrepancy existing in the use of animals between the German Army and our own Army is found in the use of draft and pack animals, chiefly draft. Why is this? First, let me tell you that the Germans have approximately 25 mechanized divisions, 35 motorized divisions, and 245 marching divisions, i.e., those where the infantry walks. We have 5 mechanized divisions, 1 motorized division, and 26 marching divisions. It is in the marching divisions that we find the differences.

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*This address was delivered in Chicago, Illinois, December 3, 1941, by Major General John K. Herr, Chief of U. S. Cavalry, at the annual meeting of the Horse and Mule Association of America.

Recent reports from abroad eloquently confirm the soundness of General Herr's masterly analysis of the military use of animals.

[1]The Russians have approximately 40 divisions of more than 130 regiments of cavalry. The splendid work done by the Russian cavalry in pursuing the retreating Germans could have been done by no other arm. During the subzero weather the horse requires neither oil nor gas nor warming up to move. Tank units bog down in the cold weather.

[2]As a result of the war in China, Japanese cavalry has more than doubled. The Remount Service, in both Japan and Manchoukuo, has been doubled and the most painstaking care is being exercised to develop more and better mounts. The Japanese have stated:

"Many things hitherto unnoticed even by the thinking public have been brought to light, frequently with new emphasis and implications, through experiences undergone on the China and home fronts in connection with the present conflict. The usefulness of the horse in modern warfare is one of such discoveries. In reality, without the services of this dumb, faithful animal, Japanese troops would not have been able to carry out successful, daring attacks upon enemy positions, particularly in battles on the rugged steppes and in the narrow passes of the Chinese mountains. Contrary to popular expectations, the increasing mechanization of the Army has by no means diminished the utility of army horses. The present hostilities have certainly established their distinct place in modern warfare."

Germans find uphill going in Russia.

In the German marching division all the artillery and practically all the other transportation, whether of supply or fighting echelons, is drawn by animals. In our divisions there is not a single animal; all our vehicles are motorized. Why this striking difference? The Germans claim that there is no reason for using motors where animals will do as well. Animals can draw vehicles as fast as men can march so why use motors with marching divisions? The Germans use great fleets of motor vehicles to bring supplies from bases to the divisions. Thus it is motors for the long haul and horses for marching transportation. They believe also that it is wise to balance the use of resources. Although we are the greatest motor country in the world, we have vastly more animals than has Germany. With more than 10,000,000 horses and 4,000,000 mules in this country, why should we not achieve a similar balanced use? Although I have tried to find out why we insist on using motors for tasks which the horse can do as well or better, I have yet to find any convincing answer. I do not believe there is any adequate answer. If we used animals to the same extent as do the Germans, over 4,000 per infantry division, we would need 100,000 more animals, chiefly of the draft type. About 50,000 of them would be for artillery use. What does the Chief of Field Artillery, General Danford, think about it? I quote from one of his addresses to which he still adheres:

c. General Danford's Opinion.

"At this time, it seems appropriate for me again to make a few remarks with reference to the oft recurring argument of horse versus motor, and to state my views thereon.

"I have frequently remarked that I believe the easiest thing the Field Artillery could accomplish today would be to eliminate the horse completely from the arm. Congress and the country are definitely machine-minded and many brilliant officers simply can not see horse-drawn Field Artillery except as a relic of a bygone day. Student officers at our service schools, and commanders and umpires in our maneuvers, do not like to be slowed down by a horse-drawn artillery. In our map rooms we magnify the importance of strategic mobility, while we ignore almost completely bad weather, bottomless roads, and their effect on battlefield mobility.

"*It is my belief that in war every means and agency procurable* will be utilized in the prosecution of the war. It is conceivable that, as in the last war, the steel capacity of our country can not satisfy the well-nigh insatiable demand for airplanes, tanks, motor vehicles, guns, ammunition, bombs, manufacturing machinery, civilian needs, etc., and that someone in authority will say to the then Chief of Field Artillery, 'Animals *can* be used by you—this country's horse population is enormous. You must plan to utilize it to the fullest extent possible.'

German Infantry and supplies on the march.

"I can see no argument about this matter myself. The motor is far superior to the horse in some situations, while the horse is superior to the motor in others. For light division artillery, the horse still remains superior as a prime mover off roads through the mud, the darkness and the rain. He does not scrape open his belly on a rock, he does not fall off an embankment, he does not smash his head against a tree, and he still works a bit longer when his fodder is exhausted. In other words, the horse *can* be used by us, and he still remains superior to the motor, in what are usually the most difficult situations involving the emplacement of guns to support the jump-off of the division infantry at dawn. To discard him during peace in favor of the motor, 100 per cent, is simply putting all our eggs in one basket, and is, in my judgment, an unsound policy. There is today a minimum of argument regarding this matter within the Field Artillery itself. We have pretty well accepted the idea, that with the National Guard 100 per cent motorized, the Regular Field Artillery officer is not 'horse or motor,' he is 'horse and motor' and must qualify himself to utilize both to their maximum degree of efficiency."

d. Discussion.

The situation so wisely forecast by the Chief of Field Artillery is now here. We cannot now fill the insatiable demand for airplanes, tanks, motor vehicles, and other war supplies now vitally necessary for the equipment of our own forces and those of our friends. The time is now here when we should utilize the horse to the fullest extent possible, thereby releasing the products of industry for other vital needs. This is obviously a matter of plain common sense. Although we are now over-motorized, this can be adjusted by replacing motors by horse-drawn vehicles in at least one-half of our marching divisions and by using animals in all marching divisions to be formed in the future. Will we be wise enough to do this? I doubt it. The motor-mad advocates are obsessed with a mania for excluding the horse from war. This idea always gets a favorable press.

2. *PRESENT AND PROBABLE FUTURE EFFECT OF MECHANIZATION AND AIR ON THE USE OF ANIMALS IN WAR.*

a. General.

The German armored force-air team has profoundly influenced the trend of present warfare. It has restored the war of movement. Why? First because of perfect teamwork. Second because the tanks are invulnerable to the small arms fire of rifles and machine guns. Third because the Germans have had overwhelming air superiority. Superiority which not only swept enemy air from the skies and secured complete information of enemy movements but which by use of stuka dive bombers and attack planes actively attacked enemy groups endeavoring to block the advance. Without

such overwhelming air support, the swift advance of armored forces would be impossible. Nevertheless the Germans have restored the war of movement. This has effected to a considerable degree all the combat branches. They have motorized 35 infantry divisions to more swiftly support the fast-moving armored divisions. They have also motorized part of their artillery to move in swift support. Remember though that the backbone of the German army is 245 marching divisions which follow to occupy, mop up, and fight when the spearheads are stopped.

b. Effect on Cavalry.

This getting into the open is a happy break for cavalry. Unfortunately for the Germans, although they had reconnaissance units for the regiments and divisions, they had but one cavalry division. In the advance into Russia, they lacked the cavalry strength in divisions and corps which would have greatly assisted them. Consequently after the breakthrough of German armored forces, the Russian enemy often closed in along the line of advance and pinched off vulnerable motorized infantry which followed. The Russians also frequently interposed between the motorized infantry and the marching divisions. Isolated armored units were surrounded and destroyed. Guerrilla warfare flourished. The tank elements were ambushed by antitank units.

Cavalry can cope with all these situations. It will ferret out antitank units waiting in ambush. It will protect the flanks of the motorized infantry in battles and form a link with the slower following marching divisions. It will cope with guerrilla warfare. It is well suited to hunt down parachutists. It has the flexibility and mobility which enables it to fill in all the weak gaps.

Under no circumstances should we blindly ape the Germans. If we give scope to our imaginations, we may, by the addition of cavalry, forge the strongest spearhead of exploitation yet devised.

I believe many of our progressive thinkers hold this view. In this connection I wish to quote extracts from a letter of Major General Charles L. Scott, United States Army, Commanding the 1st Armored Corps, to Major General Innis P. Swift, Commanding the 1st Cavalry Division.

"1. I wish to express to you and all the personnel of your fine division my appreciation and that of the entire personnel of the I Armored Corps for the splendid cooperation and assistance received in forcing a crossing of the SABINE RIVER at JOAQUIN on September 28, 1941. The successful crossing of this river and the establishment of an effective bridgehead could not have been accomplished in the prompt and efficient manner that obtained, without your bridge equipment and without the most remarkably efficient crossing of your horse elements over a foot bridge.

* * * * * *

Italian mountain battery moving into position.

Using horses and their own shoulder power, these Rumanian soldiers are pulling out a German staff officer's car after it bogged down on the southern front. From the Ukraine an Axis reporter described the "chocolate" mud.

"3. I regret that the exercise did not continue through another day because I believe that your division could have demonstrated most conclusively that it could *assist armored units in their movements forward over difficult terrain and could follow up promptly and effectively the attack of these units after it had been launched.*"

As many of you know, General Scott was at one time head of the Remount Service and one of our noted horsemen, and it is not surprising that he is able to appreciate the value of horse elements. Thus, strange as it may seem, mechanization, by its great part in restoring the war of movement, has increased the opportunities for the use of cavalry.

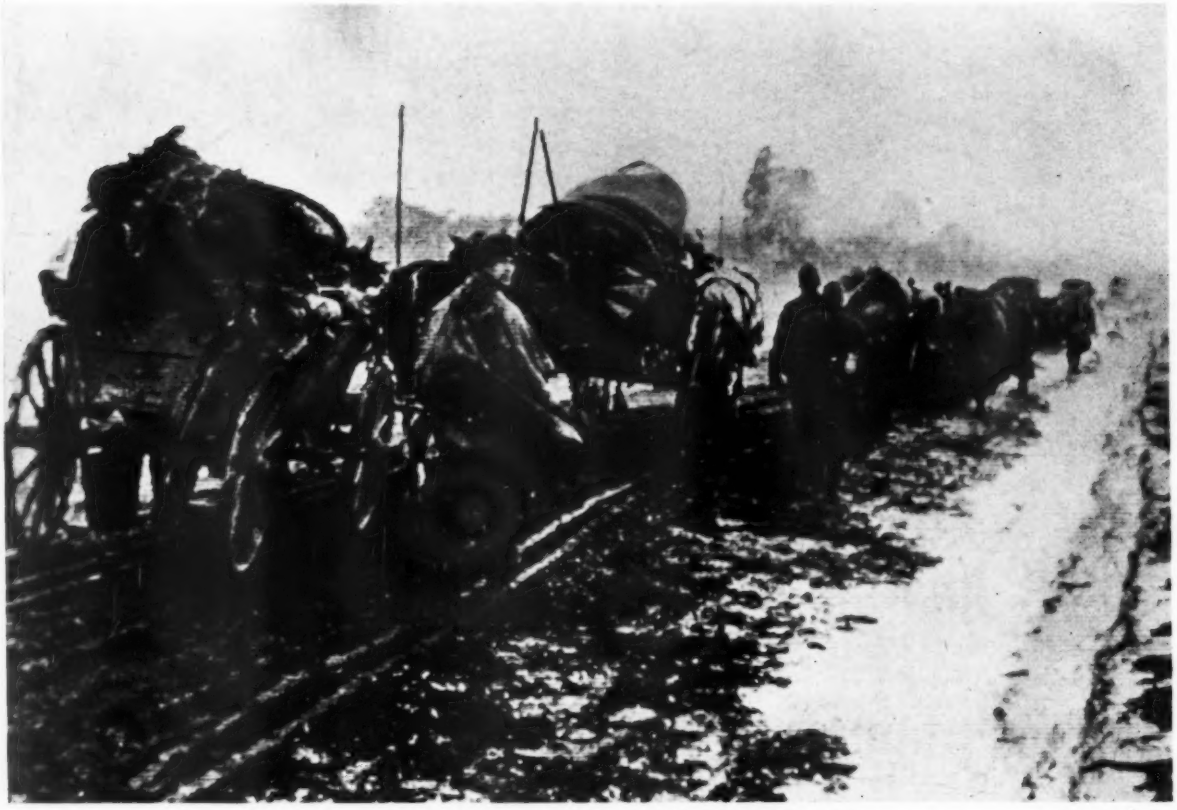
(2) Relative Increase in Air Power.

We trust the war of movement will continue and we believe it will, but we foresee a radical and swift change in relative powers of the armored force power and air power, which will effect the war of movement.

(a) Antitank Threat.

First, the power of armored forces will decrease because of the antitank threat.

The development of fast-moving antitank units, the core of which will be self-propelled vehicles mounting guns capable of shooting holes through any tank, will stop armored vehicles just as the machine gun stopped men. Although armored force commanders hold that the only answer to armored units is other armored units, I cannot agree. Theirs is a natural and interested viewpoint because it means more tanks. The answer to the armored knights was also presumed to be more armored knights, but the projectile gave a swifter and cheaper solution. You will recall that the arrows of the Incas and Aztecs glanced harmlessly off the mail-clad knights of Pizarro and Cortez, but when the English crossbow and later the musket came upon the scene, the armor was relegated to the museum. Likewise, although the present armored units are invulnerable to small arms fire, it is possible to produce myriads of antitank weapons to which they are vulnerable and which can be moved around just as fast as tanks and probably faster. In view of the fact that the present tanks cost about $1.00 a pound, i.e., a fifteen-ton tank costs about $30,000 while for the same money scores of unarmored vehicles carrying antitank weapons may be produced, there can be but one answer. As a matter of common sense and of dollars and cents, the diminishing power of the tank is indicated. The experience of the experimental antitank squadron formed by the 1st Cavalry Division for use in Louisiana maneuvers supports this view. The core of this force consisted of 36 "bantams" or ¼-ton trucks with 37-mm. guns mounted on



German troops moving southward in the Ukraine, using commandeered vehicles to supply Infantry columns.

them. About 72 ¼-ton trucks were used as accompanying vehicles to carry ammunition and with machine guns mounted on them to cope with enemy infantry. This squadron proved extraordinarily successful. The report shows that the armored forces feared it more than any other opposing unit; that this force not only destroyed attacking tanks but also was able to hunt down and destroy tanks. Remember antitank development is in its infancy.

(b) Air.

Second, the power of armored forces will decrease because of the constantly increasing air power.

Great as air power now is, it is still in its infancy. Soon we will have planes mounting highly effective antitank guns. What will be the effect of the antitank gun, the bomb, and the machine gun respectively on the tank, the unarmored vehicles, and the personnel in trucks? It needs no vivid imagination to foresee the carnage. Whenever enemy air can establish superiority, armored forces will be destroyed. It will be like hawks swooping down on rabbits in their runways.

c. Discussion.

Thus air power will become the strongest factor in causing a breakthrough and a war of movement. The relative power of armored forces will diminish. The relative power of cavalry will increase as a member of the ground exploitation team because of its cross-country mobility and powers of dispersion, which enable it to avoid losses from the air and continue to move. These inherent powers also enable cavalry to evade tanks, continue on, and attack supply columns and infantry in trucks.

Cavalry will disperse for protection and proceed on its mission.

3. *OUR CAVALRY AND ITS PROBABLE DEVELOPMENT.*

a. Our Cavalry.

(1) General.

Our Cavalry is, I believe, the best in the world. This is because it has developed in a different manner from European cavalry. Instead of fighting mounted, our mounted troops have followed the methods of Sheridan, Buford, and Forrest, fighting almost always dismounted and using the horses to place our riflemen and machine guns in an advantageous position. The ordinary citizen does not realize this. . . . He is misled by incredibly stupid writers who persist in picturing cavalry as medieval knights insanely committing suicide by fighting mounted against modern tanks and machine guns. I saw such an absurd article in a recent issue of the *American Blood Stock Review,* entitled "War and Horses." Funnier still was the caption on the booklet, "A Magazine Devoted to Horse Breeding."

I will tell you what our cavalry really is.[3] It numbers about 30,000 men and consists of 21 regiments and 10 separate troops. Nine of these regiments are National Guard and 12 are Regular Army. Ten of the regiments go to make up our two regular cavalry divisions of 4 regiments each, and the 56th National Guard Brigade of 2 regiments. These large groups are primarily for use in large operations to assist armies or groups of armies. They may be organized as a cavalry corps under GHQ combat or may be separately attached to armies.

(2) Reconnaissance Units.

The smaller units, consisting of 11 regiments and 10 mechanized troops, are chiefly for attachment to infantry units, mainly for purposes of reconnaissance and scouting. Thus 9 of these regiments are horse and mechanized corps reconnaissance regiments.

(a) Horse and Mechanized Regiments.

Our horse and mechanized regiments consist of a mechanized squadron of scout cars, bantam cars and motorcycles, and a horse squadron of 555 horses portéed, i.e., with each complete fighting unit a squad of 8 men, 8 horses, equipment and arms carried in a truck-tractor with semi-trailer. The entire horse squadron is loaded in from five to seven minutes. The signal platoon, antitank platoon, and pioneer platoon are motorized so that this entire regiment can move on wheels. They are part of the army corps for use as reconnaissance regiments. One of these regiments, the *4th U. S. Cavalry,* during the maneuvers of last summer *marched approximately 5,000 miles from Fort Meade, South Dakota,* to Louisiana and return, participating in all the maneuvers. The rate of march to and from the maneuver area was *over 200 miles* per day at an average rate of 25 *miles per hour,* with a cruising rate of 30 *miles per hour.* Because of its power to bring its animals fresh to the battle area and then to operate with both machines and horses over all types of terrain, the horses often swimming streams and traversing areas inaccessible to vehicles, it was highly successful and earned the plaudits of all commanders. During this entire period of almost two months, only 6 horses were evacuated—5 for wounds and one for laminitis. The horses were in fine shape at the conclusion of the maneuvers, showing the value of using motors to conserve the horses.

(b) Mechanized Troops.

Nine of the scout car reconnaissance troops are for reconnaissance units for the 9 triangular divisions. Unlike the Germans, we have no horse reconnaissance groups with our Infantry divisions and regiments. We need them. *Obviously the combination of horse and*

[3]It is rather a tragic situation also that a vast number of army officers, including many of high position, have very little understanding of the real value of American Cavalry. They little realize that it is the one branch we have developed which is better than that of any foreign nation. Many of them seek to minimize its value and to ridicule it and finally to do away with it, totally unaware of the real value of the treasure which they have.

Battling the elements. Horsepower moves German guns into position in deep snow.

Germans pack food to troops in combat areas prohibitive to motor vehicles.

motor is the most effective organization to conduct reconnaissance over all kinds of terrain. Vehicles are largely restricted to road reconnaissance. We should also have at least *one squad of horses portéed for use of all division and corps staffs, both infantry and armored, for use in detailed staff reconnaissance. This would also save some of our Generals from capture.*

(3) Cavalry Divisions.

(a) Composition.

Each cavalry division is a self-contained fighting unit, supported by auxiliary arms and services, just as in an infantry division. The horse strength of a cavalry division is 7,413 of which 6,080 are used in the 4 regiments for riding and pack and 1,156 used by the two horse artillery battalions for draft and riding. There is a troop of pack mules in the Quartermaster Squadron. All other units are mechanized and motorized. This includes the fighting units of one battalion of 155 howitzer artillery antitank squadron and mechanized reconnaissance squadron of 2 bantam troops, a motorcycle troop, and a light tank troop. This is largely because horse-drawn vehicles cannot keep up with our marching cavalry. Also, all service units such as Engineers, Signal, Medical, and Quartermaster are motorized. We have in our Quartermaster Squadron two troops of truck-tractors with semi-trailers, like those in the horse and mechanized regiments, capable of transporting one squadron of horse cavalry. Thus in our cavalry divisions we use both motor and horse for reconnaissance purposes. We have no prejudice against the motor or against mechanization, as is shown by our employment of both where helpful.

(b) At Maneuvers.[4]

Maneuvers at their best are highly artificial. In recent maneuvers, the cavalry divisions were used chiefly on the flanks for wide sweeping operations, sometimes in combination with armored forces. These missions were suitable and effectively accomplished, although requiring unusually long and forced marches to adjust their movements to the unnatural speed of approach of the opposing infantry forces, moving in trucks along

[4]In all the maneuvers that have been held in the past two years opposing forces have been set down opposite one another at distances varying from 50 to 100 miles with the stipulation that no part of either force shall cross a fixed line before a certain time. Thus the maneuver starts with an assumption of unreality which affects the whole conduct of the exercises; knowing there can be no enemy between these fixed lines, commanders proceed to commandeer all the trucks they can get from the supporting services, dumping even the kitchen stoves on the ground, load these up with about one-third of the infantry troops and proceed to boil down the roads toward one another, without any reconnaissance of the fields and forests. Naturally, under such unreal conditions it is plain that cavalry is too slow to move out in front of these forces. This is undoubtedly true under the assumed conditions, but you would not find any such conditions in war. Thus unsound conclusions are based on methods which are the result of unsound and unreal assumptions. The resulting road war caused by the clashes of these heads of columns also caused the unsound assumptions to be made that the portéed horse squadron is not necessary in a horse and mechanized regiment. Naturally, nothing is necessary under such absurd assumptions, except motors rolling down the roads.

Mounted food carrier gallops across exposed area to reach troops under fire.

the motor roads. In war, enemy air would attack the truck columns. If released, squadrons of enemy cavalry, infiltrating forward between roads, could have waylaid, ambushed, and ruined most of these columns racing down the roads with no reconnaissance of intervening country.

Another artificiality incident to this type of maneuvers was the necessity for cavalry to make long road marches between phases or problems to reach new positions according to the pasteboards set up on the great map of the control room. After prolonged tactical marching in one exercise or phase, it is a bit annoying for cavalry to be obliged to make long marches to new positions, and to plunge immediately into a second exercise with no rest for horses or men, while all other troops were shuttled by motor to new positions. These things actually happened. For instance, between the first and second phases of the GHQ exercises, the animal elements of the 1st Cavalry Division marched almost 100 miles in the interim of four days, while everyone else was motoring or resting.

During the period August 17-October 1, the 1st Cavalry Division marched about 1,000 miles with little rest. On one occasion it marched 73 miles in 39 hours. Again it marched 44 miles in 20 hours, crossing the swiftly flowing Sabine River, and delivered a decisive blow against the right rear of the enemy army, capturing and destroying the gas supplies of the 2d Armored Division. Again it marched 71 miles in 35 hours, again crossing the Sabine River, swollen by rains to a depth of 10 feet, and established a wide bridgehead for the crossing and development of the 1st Armored Corps. The 2d Cavalry Division performed scarcely less notable feats. It was the only large force which could be extricated from combat and speeded to combat the 1st Cavalry Division in its drive against the supply lines of the wing. It may interest you to know that in spite of having it tougher than anyone else, the cavalry soldiers although driven to the utmost effort were at the end of these maneuvers cheerful and ready to go on. It was really inspiring. There has never been any question as to the morale of our cavalry.

(c) Horse Casualties.

Considering the conditions, the horses held up mighty well also. Of a total of 11,000 animals in the two divisions, the total number of evacuations which includes all absence from duty, although often for trivial injuries and for a few days only, totalled 2,722. Of these 1,400 were returned to duty during maneuvers, and by the end of October, all but 120 had been returned to full duty. Only 87 animals died or were destroyed. It may interest you to know that the majority of these horses were remounts of less than six months' service. The 1st Cavalry Division had 25% remounts. Of these 864 were 5-year-olds and 44 four-year-olds. The 2d Cavalry Division which was expanded rapidly

had 95% remounts. Of these 976 were 5-year-olds and 57 four-year-olds. Horses over six years of age showed up much better than the others. As I have stated, out of 450 horses of the 4th Cavalry, only six were evacuated. Had truck-tractors and semi-trailers been available to shuttle our division horses, the evacuations would undoubtedly have been similarly reduced.

(4) Horse with Motor.[5]

Arrived in the battle areas, where roads can be used but little, cavalry has greater tactical mobility than any other arm. Why not give it the same strategical mobility as other troops have? It is just as easy to transport horses on motors as to transport men or guns. It is done by rail. Why not by motor? The chief criticism of cavalry divisions has hinged on the lack of strategic mobility in competition with the motor on the road. Why not give him the motor? I tried to secure these but met with opposition. First, it was claimed that the truck-tractors with semi-trailers had not yet thoroughly proved themselves, and that we should wait until after the maneuvers to find out. To my mind, they had already been proved. The other objection was that "Transportation which must itself be transported on occasions is obviously inefficient. It must justify itself by other essential qualities, which are not too apparent in horse cavalry." There you get the picture. Reluctance to place the horse on a par with the man and skepticism as to the value of cavalry. The fine performance of our cavalry divisions at maneuvers did much to dissipate this unbelief in cavalry. The truck-tractors and trailers proved highly successful. *And, I now have hopes of accomplshing my purpose to equip the division with horse carriers for long hauls.*

b. Probable Development.

Our cavalry divisions should be so developed as to enhance their unique power to disperse under control moving over all kinds of terrain. This involves the *use of air transport* to replace much or all of the wheeled transport for purposes of supply. The *employment of only such combat vehicles as possess the greatest degree of cross-country mobility,* such as *bantam cars.* The *use* of *horse trailers* to *increase strategic mobility. Attached air bombardment groups to furnish swiftly moving air artillery support. Grasshopper planes to insure control of dispersed forces. We must so develop our individual soldiers and small unit leaders as to be able to find their way over unknown terrain singly or in small groups, and to care for themselves and their animals as did the scouts of frontier days.* The training of a military team is like that of a football or polo team. Stress the fundamentals to perfection. Then build up the

[5]Wherever men fight on their feet on the ground in a war of movement there will be a need for horses to transport these men with their fire power at a faster pace than can be done on foot. This is the real competition, that between a man on a horse and a man on his feet. It is not a competition between horse and motor.

Chinese pack saddles.

Japanese pack saddles.

Japanese forces move through the streets of Saigon, Indo-China, under the occupation agreement with the French government at Vichy.

Man and horsepower move guns to positions unapproachable by motor vehicles.

team play. We can do these things if given the green light.

4. *INFLUENCE OF THE HORSE AND MULE ASSOCIATION OF AMERICA, OUR REMOUNT SERVICE, AND MOUNTED SPORTS.*

You of the Horse and Mule Association and we of the Army have a community of interest in the development of the horse. As we know, in these motor-mad days it is difficult to get a square deal for the horse. This applies to both civilian and military. You are aware of the aggressive efforts of certain motor interests to push their products by publishing pamphlets comparing horse and motor and teeming with exaggerated and untrue statements which you have exposed. You have not the promotion funds at your disposal. You might try forming some corporations of horse and finance to enable you to offer some fine animals for a small down payment and monthly installments to include insurance at 12% interest or more. Anyway you are doing a fine constructive job in advancing the interests of the horse.

Our Remount Association has also done a wonderful job as you know. It purchased during the fiscal year 1941:

Horses, Riding	22,720
Horses, Draft	1,333
Mules, Pack	4,096
Total	28,149

Its authorized purchases for the fiscal year 1942 were:

Horses, Riding	4,785
Mules, Draft	342
Mules, Pack	1,799
Total	6,926

During the fiscal year 1942 up to December 1, 1941, it purchased:

Horses, Riding	3,140
Mules, Pack	198
Total	3,338

I have observed all the remounts sent out during the expansions to cavalry units, and I concur with the various commanders that this is the best group of remounts ever sent to our units. This reflects just credit on Colonel Hardy and his subordinate officers. As you know, the quality of horses in this country has greatly improved by reason of the intelligent efforts of your association and our remount service. Insofar as military

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Japanese baggage train on the march in China.

Flooded rice paddies are natural motor traps.

uses are concerned, this has more than counteracted the decline of numbers. I feel sure that this improvement in quality will also tend to stimulate the demand for animals, especially at this time when motors are needed for other purposes. It is an opportune time to urge the use of animals where possible to replace the motors.

We must continue to encourage all mounted sports, such as hunting, horse shows, racing, steeplechasing, and polo. All these require a fine type of horse and promote good breeding. From a military viewpoint such sports are of untold value in stimulating those qualities of dash, courage, and endurance which one needs in fast-moving war. Of all these sports, I regard polo as of greatest value to the soldier. It is a real practical school of training for a leader. It not only requires qualifications of training and riding, but the game demands teamwork, an awareness of the whereabouts of all players, both friend and foe, anticipation of play, instant decision, and rapid execution. It demands physical and mental activity. Swiftness of action will not compensate for sluggishness of thought. Good polo players are generally fine cavalry leaders. Almost all our cavalry commanders of divisions, brigades, and regiments have achieved distinction in the game of polo.

5. *CONCLUSION.*

a. From the standpoint of military efficiency and a balanced use of our horse and motor resources, it is believed we should use animal instead of motor transport in a proportion of our marching divisions.

b. We should add to the Armored Force—*Motorized Infantry* Ground Exploitation Team, *divisions* and *corps of cavalry* to produce the greatest exploitation force yet devised.

c. The most effective *reconnaissance is accomplished by motor plus horse. We should have horse reconnaissance groups with all infantry echelons from regiment to corps.*

d. The strategic mobility of cavalry divisions should be amplified by the use of motor transport, consisting of truck-tractors with semi-trailers to transport cavalry divisions on long road marches.

e. The power of armored forces will be diminished because of the threat of antitank power and air power.

f. The relative power of cavalry will increase because of its power to evade destruction from the air by cross-country mobility and dispersion. Cavalry will be able to disperse, evade, continue on its mission, and fight.

g. The greatest handicap to cavalry development is the complete misconception of our people as to what American cavalry really is. Our Army is sensitive to public opinion, even when based on ignorance.

h. The horse needs no favors. He asks only a square deal.

MORALE: Its Elements and Sources

By Lieutenant Colonel J. D. Stevens, CAC*

OUR country is engaged in a mighty effort towards national defense. This effort finds expression in the creation of a military machine which will be effectively instrumental in enforcing our national policy. The physical proportions and material aspects of our program are enormous.

From the point of view of the military, manifold problems confront the army in its attainment of full stature. Augmentation has gone forward along lines reminiscent of cell propagation, the parent unit splitting into cadres which in their turn, by subsequent subdivision, have produced more nuclei. Tables of organization have been drafted and re-drafted. Tables of Basic Allowances have been computed and checked. Specialists have bent over drafting boards to insure perfection of technical design in the various weapons and instruments of war. Matériel has been tested and improved. Production lines are humming now, through prearranged priorities and broken "bottlenecks." "Bugs" in the 1941 model, U. S. Army are being eliminated on the proving ground of field service.

There is however, in addition to the structural perfection for which we are striving in this military machine, another all-important consideration. What of the sparkplug? If this mechanism fails in its essential function of injecting the life-giving properties of electricity into the vitals of the machine, the vehicle will not move. No instrument, its outward perfection notwithstanding, which depends for its activation on electricity, is of any value without a constant and regulated flow of current.

There is a kind of current which is as vital to an army's purpose as is electricity to a machine. Its qualities are as subtle and elusive. This indispensable electrifier is MORALE.

In a military machine, the leader is the sparkplug. He must galvanize it into action. He must energize the instrument toward the accomplishment of the mission for which it was designed. In a word, he must electrify the machine, which his staff creates and maintains, with the vitalizing spark of morale. On his capacity to perform this function depends the military value of his organization.

In view of the importance of morale, the leader should understand the nature of it; what it is; what are its elements and sources.

Man is, in many ways, a machine. The spirit which animates his being may be compared to the electricity which activates the machine. Potentialities, then, exist in both. Both require the presence of a vital spark before their capabilities can be made manifest. Let us examine this intangible essence as it influences man's actions, and, since man remains the most important military element, its influence on our extended organization.

"These are the times that try men's souls," and surely morale can be called the soul of an army. Spirits are being assailed by disappointment and discouragement today, as certainly as when Thomas Paine uttered this famous phrase. In Napoleon's words: "The spiritual is to the physical, as two is to one." If an army has morale it can accomplish any mission; if not, it will fail. Let us trap this elusive quality and set it down in black and white, where we can analyze it.

Morale is the catalyst which insures the union of strength and will in an instrument of achievement. It is the impalpable, but unquestionable hallmark of military excellence; the sine qua non of military accomplishment. It is that indefinable presence which is definitive of invincibility; it is the adrenalin of aggressiveness. It is an intangible quality which gives concrete force to the efforts of the unit possessing it. Finally, on the one hand, it is an elusive will o' the wisp which beckons to all leaders who cannot infuse their commands with its stimulus. On the other, to leaders whose troops possess it, it is a beacon which inspires the undertaking and lights the way to accomplishment of any mission.

He who succeds in inculcating morale in his command, will have soldiers whose:

Mettle is without a peer,
Obedience is prompt and intelligent,
Resourcefulness surmounts all eventualities,
Assurance will not be denied,
Loyalty is unswerving,
Enterprise welcomes every challenge.

We have set up a body of attributes whose manifestations are indicative of the presence of high morale. We have delineated characteristics which will evince themselves in meritorious action, along the lines indicated, whatever the situation, whatever the mission. How are we to cultivate such an ideal state of mind on the part of our units, that, under all circumstances, we can rely on the desired reaction? Analysis of what we want is comparatively simple. To search out the sources of abstract qualities and from them synthesize the desired condition, is another matter.

In order to weld human beings into an instrument

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which assumes mechanical properties for the execution of an appointed task, we must deal with human nature. It is paradoxical, that in making men behave as machines, we must treat them as men. Human nature, often spoken of as fickle, has, strangely enough, changed not at all since recorded history. It is basically a constant quality, though its ramifications may at times be diverse. This fact should be remembered when attempting to produce that salubrious state of mind we are pleased to call high morale.

Let us examine the manifestations of morale in the order in which we have listed them above, and see if we can discover the sources from which they may be derived.

METTLE: The most important ingredient of this attribute is courage, that quality of mind which meets danger or opposition with intrepidity, calmness, and firmness. It may be true that courageous men are born, not made. In this sense, courage is a quality which must exist, per se, else neither the most dramatic situation nor the most inspiring example can call it forth. We are fortunate in knowing that the men who comprise our Army are well endowed with the fundamental American attribute. They wear the badge of courage already, and are sure to keep it bright with the proper example of leadership before them.

Vegetius takes the view that: "Few men are born brave; many become so through care and force of discipline." It might be more correct to say: Few men are born with an awareness of their own courage. In this case, we must convince such individuals of the existence of bravery within themselves. Accustom them to the hazardous, the arduous, the dangerous. Sun Tzu says: "Soldiers when in desperate straits lose the sense of fear." Confronted with a difficult situation, they find the innate quality of courage to exist in unsuspected measure. Its manifestation in the face of danger apprises men of its presence. Once summoned, courage will rise more swiftly when they are again called on to display their METTLE.

OBEDIENCE: In campaign, football-field execution of commands is imperative. Discipline, called the "soul of armies" by Marshal Saxe, is defined as the "habit of intelligent obedience" by our own field manuals. Saxe also foreshadowed our own interpretation when he said, "It is a false idea that discipline, subordination, and slavish obedience debase courage. It has always been noted that it is with those armies in which the severest discipline is enforced, that the greatest deeds are performed." And, as a matter of fact, it is generally true, that the unit which exemplifies discipline in its drills, has an excellent record in all other fields of military endeavor.

However, let us consider intelligent obedience as the means by which control is exercised. As such, it recognizes the superiority of the commander's military knowledge concerning the aspects of all situations and insures the execution of his will in effecting a solution of the problem. It subordinates petty considerations to the accomplishment of the mission at hand. It gives direction to the means necessary to attain an end.

Men must be led gradually into the habit of intelligent obedience. In Sun Tzu's words: "If soldiers are punished before they have grown attached to you, they will not prove submissive. If, when they have become attached to you, punishments are not enforced, the soldiers will be useless." Obedience is based on the age-old principle of reward and punishment. Through this principle's application it should become habitual. Meritorious action and infraction of orders should alike receive prompt recognition and appropriate treatment. Although force is the ultimate instrument of compulsion, it should not receive undue emphasis. The primary object of imposing punishment is not retribution for the guilty, but deterrence of potential future offenders.

Abuses are not rectified by the issuance of orders, for the multiplicity of commands itself predisposes to noncompliance. The important thing is to implant in the minds of your men the conviction that orders issued will be followed up and enforced. Nothing is so prejudicial to discipline as the belief that many infractions go unnoticed. If a few violators are apprehended and the majority go free, those punished complain of injustice, while those escaping are prone to boast of their misdeeds. Issue few orders. Keep in mind that the manner in which orders are given will have a bearing on the way in which they are executed. See that they are enforced. Promptness of punishment, not its severity is the essential thing. Keep your men occupied with professional and recreational pursuits. Avoid, as much as possible, the idea of compulsion. These procedures, with prompt and impartial administration of justice, will inculcate in your command the habit of intelligent OBEDIENCE.

RESOURCEFULNESS: The possession of this attribute involves two elements: adaptability and foresight. In view of the casualties that may be expected in conflict, with consequent disruption of initial plans and organization, the value of resourcefulness is beyond question. Adaptability is conditioned by foresight. Every man should be taught to perform the functions of his teammates in the particular tactical unit of which he is a member. While this may appear inconsistent with efficiency in a day of specialists, it nevertheless has particular application in small tactical units such as the rifle squad, artillery gun and range sections, meteorological sections, and in lower echelons of armored, mechanized, and motorized units. Every man should also be capable of assuming the command functions of at lease his immediate superior. So much for flexibility of attitude in a war of rapidly changing conditions.

According to Sun Tzu, "The general who wins a battle, makes many calculations in his temple ere the battle is fought." The employment of means to de-

velop a force which can reorient itself and carry on under changed situations, and in face of losses, has already been encouraged by our own commanders.

Commanding Generals of our overseas departments have directed that various units of one arm be trained to function as other arms. Maneuver situations were imposed which required the application of this principle by the units under their command. This principle has been extended to lower echelons, wherein company or battery schools for N.C.O's were conducted. In this way the duties and responsibilities of successive ranks were outlined for actual N.C.O's and potential non-commissioned officer material. Needless to say, the interest evinced in the cited instances was keen.

To paraphrase Napoleon, anticipation of, and preparation for contingencies constitute RESOURCEFULNESS.

ASSURANCE: This attribute stems from past accomplishment and enhances the prospect of future success. It is synonomous with confidence. Confidence is based on achievement. Achievement proceeds from ability, and ability is engendered by training and preparation.

Preparation and training are directed by the leader. In cultivating confidence in their troops, commanders will do well to consider the opinion of Vegetius, that the assurance of a soldier is heightened by his *knowledge of his profession,* and he only wants an opportunity to execute what he is convinced *he has been properly taught.* And he adds, "All arts and trades are brought to perfection by continual practice." No less the art of war, though the application of this truism is familiar to everyone.

Chances of success are multiplied by a conviction of the ability to achieve it. Conviction of ability is based on thorough training; teach a man to do his job properly and he will welcome the chance to demonstrate his capability. Success may depend on opportunity, but if assurance is lacking when opportunity knocks, you will lack the key to open the door.

Successful accomplishment produces a healthy state of mind which is sustained by pride in successive achievements. Thus, any new challenge is quickly accepted in order to uphold the record of past successes.

Confidence, however, has certain of its roots in the judgment of the leader. Hence, troops should not be assigned impossible missions. Neither should their confidence be compromised by allotting them tasks for which they are unprepared. Their ardor should not be vitiated by assignment to patently fruitless occupations. Careful and thorough training will develop ability, and this in turn insures success, which will stamp your organization with the hallmark of ASSURANCE.

LOYALTY: "Regard your soldiers as your children, and they will follow you into the deepest valleys; look on them as your own beloved sons and they will stand by you unto death." Although these words were spoken by Sun Tzu 500 years before Christ, their truth is recognized in the paternal status of the commander, with reference to his troops, which is encouraged today. The importance of this relationship cannot be over-emphasized, and should be fully appreciated. The further admonition of the great Chinese general to "carefully study the well-being of your men, and do not over-tax them," should also be kept in mind. Personal loyalty, even in our mechanized age, cannot be replaced by any other factor. The paternal idea is natural and instinctive. It finds expression today in the common reference to the C.O. as "The Old Man." This is a homely term of affection but it means more, perhaps, than anything else in the morale of an organization. When all other considerations have been nullified by disastrous reverses, men will draw unsuspected strength out of personal devotion to their leader. Every officer should carefully study means to insure and enhance the loyalty of his command.

There are two chief elements which make up loyalty toward the leader. One is human or personal; the other is professional or official. The real leader commands both love and respect from his followers. Both of these are required.

Vegetius said the commander should "extend his care to every private soldier," and added, "he must know, if possible, the name of every count, tribune, subaltern, and soldier." This practice was followed to a remarkable degree by Napoleon, who habitually visited the camp fires with inquiring solicitude as to the physical well-being of his men. These and similar procedures calculated to foster personal loyalty paid dividends a thousandfold.

There is nothing which means more to a subordinate than *appreciation* of his efforts on behalf of the commander. Nothing is more gratifying to any man who serves, than recognition, by his superior, of a job well done. It satisfies the ego in all of us and calls forth the determination to merit further recognition of our efforts. The application of this principle may be attacked by some as prejudicial to the proper interpretation of "duty." However, a judicious approach to this question is within the discernment of all officers, and no other means of enlisting loyalty will be found so remunerative. It is perfectly natural that appreciation of their efforts and concern for their welfare, will implant in the hearts of the troops, a determination that "The Old Man" will never be let down.

With regard to the professional aspect, the commander must be a personal example of soldierliness, if he is to command the respect of his men. He should be with them in the field, and should be prepared to share the privations they undergo, whenever necessary. He should see to it that his professional attainments measure up to the expectations of his men. He should not allow his command to suffer because of his personal shortcomings, for "fidelity is seldom found in troops dis-

heartened by misfortune" or disappointed in their estimate of their leader.

In all official dealings, impartiality should be the watchword. In the words of Saxe: "Negligence should be punished without partiality and without distinction of rank; otherwise, you will make yourself hated. Severity must be accompanied with kindness, but this should not have the appearance of pretense, but of goodness."

Finally, in regard to loyalty, cultivate a sense of humor. A story of the famous Prussian, Frederick the Great, will illustrate the ability to see one's self as seen by others. While riding down a street in Berlin, Frederick came upon a crowd craning their necks at a caricature of the Emperor. Realizing the cartoon was lampooning his characteristic personal parsimoniousness, Frederick said, "Hang it lower, lower that they may not hurt their necks about it." To the rousing cheers of the crowd, the Emperor drove on, realizing he had materially increased his subjects' LOYALTY.

ENTERPRISE according to the dictionary, is boldness, energy, and invention in practical affairs. It connotes aggressiveness and initiative. It is developed by habituating one's self to constant challenges and new problems which require self-reliance and vigor in their accomplishment. It signifies verve and the will to win. "Unhappy is the fate," said Sun Tzu, "of one who tries to win his battles and succeed in his attacks without cultivating the spirit of enterprise; for the result is a waste of time and general stagnation."

Let us call enterprise the ambition to outdo others. One of the most enterprising officers in our army adopted the slogan, "Results, not Excuses," and posted this phrase over the organization bulletin board as a constant challenge to the unit. Many organizations have probably adopted similar watchwords to stimulate a desire for excellence.

A prerequisite of enterprise is pride. This rightly begins with the individual. Once the individual develops pride in himself, that spirit is extended to the whole outfit. As a basis of personal pride, a commanding general of one of our overseas departments insisted that pride in personal appearance is the open sesame to subsequent development of high spirit. Consequently, fit and tailoring of the uniform were made the object of great attention, and this effort was visibly rewarded by the concomitant heightening of the soldier's pride in himself, his uniform, his outfit, and his Army. It was good psychology. Interest in appearance is receiving deservedly increased attention today. It should be stressed. Pride in the uniform is important for officers and should be equally so for all ranks. Increased pride in appearance contributes to élan, and sustains an aggressive attitude. This point, in general, should be remembered before consigning "spit and polish" completely to limbo.

Further impetus to an enterprising spirit is fostered by competition. In this case, pride in excelling whets the appetite for added prestige. Hence the value of inter-organization athletics, which is generally recognized. In at least one overseas department, a program of military games has been inaugurated. Organizational teams vied with each other in events ranging from such fundamentals as tent pitching, to those involving the highest coördination, such as battle practice. The competitive spirit thus engendered was something to behold. A constant challenge to pride, by whatever means, is a sure way to develop ENTERPRISE.

CONCLUSION

As postulated earlier, human nature changes little. Mastery of tactics and technique requires an understanding of contemporary developments. Technical advances today are of such proportion that we tend to overlook the instrument which will direct the weapons they have produced. However, as the directing element, man remains the fundamental unit of an army. And, the direction and use of the weapons at his disposal are conditioned by his state of mind, his will, his MORALE.

This indispensable state of mind for which we strive is a function of temperamental variables which respond, in large measure, to impulses of the heart. Marshal Saxe, stern warrior that he was, realized this when he said: "Without a knowledge of the human heart, one is dependent on the favor of fortune, which is sometimes very inconstant."

It is our function as leaders to supply the spark, to insure the morale, by cultivating in our men the qualities we have considered above. Their presence in a command is proof of effective leadership.

"We have only considered leadership by the officers; but what of the noncommissioned officers? The answer is simple. Good officers will produce good N. C. O's just as good officers and N. C. O's will produce good men."—*Suggestions for Unit Training* by MAJOR M. P. HUTHWAITE, British Army.

Editorial Comment

The Axis signatories will rue the day that Hitler called the world "to arms!"

TOTAL WAR

TOTAL WAR is ghastly! We and our Allies are now confronted by a sinister, unethical enemy coalition whose Nazi-Fascist-Jap imbued methods of waging warfare are particularly contemptible, repugnant and repulsive to our civilized minds.

The Axis gangster nations have replaced the international *Rules of Land Warfare* by total despicable RUTHLESSNESS, under the guise of military audacity and sagacity.

The United States was still pleading for peace in patience and good faith, still offering Japan honorable friendship when the Tokio government, making plans for a surprise attack upon an unsuspecting friendly populace, struck without warning. It indubitably was premeditated! *Thus, the treachery was complete.*

In total war we fortunately know what to anticipate. Since this war apparently is to be total *we* also know how to wage it. If we must accept the *gauntlet,* we can! It includes the effective employment of every known weapon, sabotage, and subterfuge. Thus far, the use of lethal gas by our enemy has been the only exception—probably through fear of retribution. Yet, unfortunately, its employment still is within the realm of possibility. Its main value obviously is in surprise action. Training in anti-gas measures, therefore, must be stressed continually—for animals as well as for personnel, both military and non-military—and also in its offensive utilization.

We must *always be alert* and remember that when our totalitarian, barbaric enemies realize that ultimate defeat is inevitable they will resort to *any means* to further their despotic objective. We wisely should acquire a *total war perspective.*

Total war, as we understand it, implies the force of arms, strife, mass-starvation, brutality and national hostility in every detail.

We shall not forget!! We cannot forget!!

OBJECTIVE NOW CLEAR

We and our allies now have but one objective—*Victory!*

There must be no distracting or disconcerting influence. Unmercifully, our concerted prosecution of titanic global war must be directed toward the assured total destruction of the infamous *Axis alliance* and all that it implies—the global intent of the scourge personified by the Axis signatories.

In the American Revolutionary War we fought for *national birth.* In our Civil War we fought for *national unity.* We, now, are righteously fighting for *national existence.*

We have the resources to win. We have the just cause, and in that might and in that right we have such national unity as never before in our history. There is no place now for complacency. We must be *tough!* The Japanese attack on Hawaii united America in a common horror and in a common resolve—a unity as grim and complete as if Japan had struck individually at 130,000,000 Americans. In our cause the Western nations rightfully have rallied.

We must fight with everything we have. It will not be easy. But the greater our concentration and the greater our sacrifice, the sooner the victory.

Mr. Hitler's infamous major technique, compounded of evil and now aped by the dastardly Japs, is to spread terror among troops and civilians. Bombs are supposed to shatter nerves even more than buildings. Fear and confusion, caused by rumors of raids that are exaggerated or imaginary, destroy even more—*morale.* But we are unafraid! *Our morale will not falter!*

So, let's get on with the job of winning this war—the long job, the hard job, the sober job, the fighting job, the dirty job, the deadly calm job of winning *this war.* To this we are dedicated full-time, *all-out!*

Our training objective is now clear!

OUR CAVALRY

WAR has found our cavalry ready for *any* eventuality. Better trained, better armed, better equipped, better mounted than ever before, with a higher standard of officers and men, our cavalry now *champs at the bit.*

Our 1941 development established a sound basis for the 1942 wide expansion of our cavalry, which now is urgently necessary. Under the practical guidance of our Chief of Cavalry we have proceeded on the basic idea that a military team, in order to be effective, must first be efficient in fundamental basic training and in perfected organization; beginning with the individuals and the smallest units. In our Cavalry School and Cavalry Replacement Training Center as well as in all cavalry units these ideas have been stressed with confidence and professional understanding.

It is only too apparent that roads in this war will be very unhealthy places for road-bound vehicles. Cavalry, therefore, has specialized in marching and maneuvering across country over all types of terrain, in dispersed formations. They seemingly scatter and are out of hand, but actually they are dispersed, *in order,* and are under control. In this manner they do not provide profitable targets for enemy combat aircraft. The *airplane-tank-horse* team holds inestimable possibilities of accomplishment—and this *should be exploited!*

From the meager information received of the great Russian cavalry action in the Donets area of Russia in the defeat and pursuit of German armored and infantry divisions, we have been provided with ample factual evidence that horse cavalry still is an essential factor in modern warfare. Thus, our new cavalry with traditional high *esprit de corps* faces the enemy with eager confidence in its ability to perform appropriate cavalry missions.

* * *

Speed?

Just because an automobile can travel at the rate of 80 miles per hour on a level highway does not necessarily mean that it ever is expected to travel at that rate. It does however, indicate *power*—a reserve of power for quick pickup, for hill-climbing and for *maneuver.*

Battles cannot be won solely by racing armored and motorized divisions down highways as frequently is the case in artificial maneuvers. From the initial flash reports of the Battle of France, motor enthusiasts formed a snap opinion to which many have stubbornly clung. They should now admit at least a qualified disillusionment. They pictured the German armored divisions speeding across country at 40 or 50 miles per hour under the shield of a swarm of combat planes. The true facts as we now have them indicate that even in the conquest of France the German advance against little opposition averaged only 10 miles a day. Moreover, in those areas of Russia where the terrain was favorable to tank operations the German advance averaged about 2 miles per day. The Panzer Divisions failed to reach Moscow and Leningrad because they were prevented by the Russian *well balanced* army.

Marshall Semeon M. Budenny, former cavalry sergeant in the Czarist army and leader of the famous Red

raiders in the Russian Civil War, strongly supported by Marshal Vassili C. Bluecher, Commander in Chief of the Far Eastern forces, insisted on maintaining strong *mounted* forces—approximately 400,000, mainly Cossacks in the army even after the general reform of 1925 and the "purge" of 1936. They remembered that some 600 years ago the Mongolian General Batu's army in a *blitz* advance into Central Europe made more than *160 miles in three days on horseback.*

We know now that Russian strategy held its cavalry in reserve until the Panzer attack was spent and then sent them in to harass the enemy rear and supply lines —for which task they were thoroughly trained. "A Russian cavalry unit in action is like an amazing precision machine; and not only the regular army but even the organized guerrillas have cavalry of their own, directing the actions of the walking troops and harassing the rear guards of the enemy." *They obviously were not road-bound.* Their cross-country maneuverability was decisive!

Fortunately, our own Army High Command did not fall for the flash first impression about the Battle of France. Reliance was placed on the analysis of expert reports. *Speed* is a liability, not an asset when it carries elements of the combat team out of reach of their supporting units.

Armored divisions of high skill are indispensable in modern warfare, but they cannot perform miracles. The coördinated combined efforts of all arms and services are necessary to win wars.

Horse Power

The CAVALRY JOURNAL continues its persistent efforts in assisting military and civil agencies to fully appreciate the value of horses in war—both militarily and commercially. This in no sense should be interpreted as a depreciation of the motor. In war the horse and motor complement each other. Both are necessary.

In the combat area cavalrymen know that horses, due to terrain and climatic conditions, can go places prohibitive to motor powered machines. We must therefore activate our individual efforts to impress on others the vital necessity of immediately increasing our horse cavalry while we yet may have time. The notable exploits of Russian cavalry is the *handwriting on the wall.*

It is pure folly to underestimate the enemy's ability to attack the mainland, as there are numerous areas along our vast coastal frontiers where a toe-hold landing might be attempted—areas without a suitable road-network for coastal defense. The proper position of mechanization in our army is now assured. So we must therefore undo some of the sales propaganda that has been spread by the motor industry. Moreover, motor vehicles, rubber, fuel and other critical supplies are certain to be rigidly rationed. Animal transportation will be equally vital to governmental and commercial activities. The United States is rich in horse and mule strength. It should be exploited at once. We must take the *long term view!* The return of the "horse and buggy days" is not now remote. The necessity for economy in machine power already has arrived. The small farmer and many commercial concerns will be almost completely dependent on draft horse and mule power. The light horse business, also proportionately, is bound to increase. The promulgation of information to effect this realization is imperative. Now is the time for our horse and mule and related agencies, such as vehicles and harness accessories to plan for the immediate future—the wartime utilization of horses and mules alike by our governmental and commercial establishments.

Censorship

We are at war! The question which we naturally ask now is, "What about censorship?"

The average man on the street usually will tell more than he knows. It is a national characteristic! The less he knows, the more he will tell—about military and naval strategy, tactics, politics; *any subject.* One can have a voluble seemingly authentic discourse merely for the listening. Many Americans like to appear to be "in the know." This weakness, however, may prove to be our strength. Foreigners have been furnished so much critical data relative to our National Defense *secrets* that it is now impossible for them, we hope, to differentiate between fact and fiction.

From now on, however, the case assumes new aspects. There are two kinds of censorship—formal and voluntary. Formal censorship is that imposed by governmental officials and regulations. President Roosevelt, discussing censorship for the duration of the war, placed most of the emphasis on voluntary censorship. There need be but two rules, he stated. First, news must be accurate. That needs only to be said; it applies in peace time as well as in war. The second rule, is that news *must not give aid and comfort* to the enemy.

There is no doubt about the meaning of the term *aid,* but comfort is an elastic word. Any public criticism of our own government, or of particular officials or of our war effort, etc., would give comfort to the enemy—without necessarily giving military aid. We should be sure of our facts and avoid the spread of depreciatory rumors and whispering propaganda. True information is an antidote and preventative of false rumor. When facts are verified the government will officially publish them just as it did *after investigation* when Hawaii was attacked.

Formal censorship obviously should not be merely a perfunctory compliance with regulations. We should assume that "fifth column" ears and eyes are anywhere —EVERYWHERE! The same is true of voluntary censorship, only *more so.* For mutual and national safety we should lean over backwards in our effort to apply *voluntary censorship* and assist civilians in appreciating the necessity for such action.

Average Prices Paid for Army Horses and Mules Fiscal Year 1941

Animals	*Average Price*
Horses, riding	$161.96
Horses, riding, light	98.54
Horses, light draft	162.50
Mules, draft	207.69
Mules, pack and riding	183.77

APO Address

Recently, nearly all of our 5,000 addressograph plates have been re-cut in an effort to keep abreast of the numerous changes in address and rank.

There will be no difficulty about The CAVALRY JOURNAL reaching you if your APO address is furnished us. Please, therefore, use the *Change of Address* cards enclosed with each issue to keep us informed as to correct rank and *APO number and address.*

Association Office Moves

The building formerly occupied by the Office of The CAVALRY JOURNAL and U. S. Cavalry Association was condemned by the government to clear the site for the newly-projected State Department Annex building. On January 5, 1942, therefore, The CAVALRY JOURNAL and U. S. Cavalry Association moved to its present location—*1719 K Street, N.W.*, to which all future communications for us should be addressed.

100% Officer Membership

3d Cavalry, Colonel H. M. Estes, Commanding.
4th Cavalry (H-Mecz), Colonel Joseph M. Tully, Commanding.
6th Cavalry (H-Mecz), Colonel John A. Considine, Commanding.
8th Cavalry, Colonel Charles S. Kilburn, Commanding.
102d Cavalry (H-Mecz), Colonel D. W. McGowan, Commanding.
113th Cavalry (H-Mecz), Colonel Maxwell A. O'Brien, Commanding (since promoted to Brigadier General).
82d Reconnaissance Bn., Lieutenant Colonel I. D. White, Commanding.
1st Cavalry Troop Rcn. (Sep.), Captain W. V. Martz, Commanding.
2d Reconnaissance Tr., Captain Anthony F. Kleitz, Commanding.
3d Reconnaissance Tr., Major Harry W. Miller, Commanding.

Editorial Policy

The wartime editorial policy of The CAVALRY JOURNAL, in substance, is stated on Page 1. The CAVALRY JOURNAL is a professional magazine. It is not in any sense in competition with the press. Our deadline date usually is four weeks prior to our date of publication. Our sole objective is to promote the professional improvement of the members of the U. S. Cavalry Association; to preserve and foster the spirit, the traditions and the solidarity of the Cavalry of the Army of the United States. The articles appearing in this journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs —insofar as they *do not furnish aid or comfort to our enemy.*

From a professional standpoint, therefore, it is well to remember that factual information relative to current combat operations rarely is immediately available. To be of professional value, considerable time necessarily must elapse before detailed information can be assembled and evaluated.

The CAVALRY JOURNAL will continue to publish authoritative information of importance and value to cavalrymen that ethically can be published, along with all obtainable pertinent data pertaining to enemy cavalry and related arms and services.

Military information relative to our allies which is not immediately available to the Axis armies obviously must be withheld.

Future issues of this magazine will constitute a file of source material of professional value elsewhere unavailable and, therefore, should be perused by members of other arms and services as well as by cavalrymen.

Editor's Mail

More About Guidons

EDITOR, THE CAVALRY JOURNAL:

In a recent issue of The CAVALRY JOURNAL, the question was asked as to why the Cavalry guidon is red and white, rather than the branch color as in other branches. This I do not believe was satisfactorily answered.

When the guidon was first adopted, St. George was the patron saint of Cavalry, as well as of England, and his colors, red and white, were adopted; although at this time the piping of Cavalry and dragoons was yellow and orange respectively.

Very truly yours,

H. L. CONNER, JR.,
1st Lieutenant, 8th Cavalry.

4538 Trowbridge Street,
El Paso, Texas.

Annual Meeting

In accordance with the call of the President of the United States Cavalry Association, the fifty-third annual meeting of the association was held at the Army and Navy Club, Washington, D. C., at 8:00 PM, January 12, 1942.

A quorum was present, in person or by written proxy, for the transaction of business.

The Secretary-Treasurer presented and read his previously audited annual report and financial statement, which was duly approved. The report indicated that the affairs of the Association are in excellent condition.

The Secretary reported that the past year has seen the greatest increase in Association memberships on record. From 2,999 members the first of the year the enrollment has grown to 4,782 on December 31st, a net gain of 1,783 members. The number of members now exceeds the total number of cavalry officers of all components now on active duty; however, there are still approximately 800 cavalry officers who are not members of the association, of which number about half are serving with the Armored Force. A mailing list of all nonmember cavalry officers is kept up to date, and monthly letters are forwarded with a view to further increasing the membership.

During the year 477 members were dropped from the rolls either by request or for nonpayment of dues. Collection of dues, however, on the whole, has been very successful. It is believed that this has been due largely to persistent monthly billing. Experience shows that regardless of the number of statements mailed each month, there is a return in receipts of about 50% of the total amount billed.

The cost of production of The JOURNAL has been increasing rapidly in the last few months, and there is every indication of further increase of expense. Paper, printing, pictures, engraving, mailing envelopes—all cost more than last year; and with the increased membership there has been a corresponding increase in the quantity of all supplies, postage, etc.

The net profit derived from sale of books by the Association during 1941 again exceeded any previous year. It is believed that inasmuch as this profit covers office clerical overhead, the Association is operating on sound principles, thus allowing income from membership dues to be utilized almost solely for publication of The CAVALRY JOURNAL.

After the Secretary's report the next order of business was the election of officers for the ensuing year.

The following were elected:

President: Major General John K. Herr, Chief of Cavalry.

Vice-President: Brigadier General Hamilton S. Hawkins, U.S.A.

Secretary-Treasurer: Colonel Fenton S. Jacobs, Cavalry.

Executive Council: Brigadier General Maxwell A. O'Brien; Colonel William W. Gordon, Cavalry; Colonel James T. Duke, Cavalry; Colonel Wayland B. Augur (Cav), GSC, GHQ; Colonel H. E. Eastwood (Cav), GSC; Colonel D. W. McGowan, 102d Cavalry; Lt. Colonel Verne D. Mudge (Cav), GSC; Lt. Colonel Homer E. Carrico, 311th Cavalry; Lt. Colonel Herbert H. Frost (Cav), 2d Armored Division.

Following the showing of a motion picture illustrating U. S. cavalry operations the order of business enthusiastically turned to the affairs and interests of the Cavalry Association with remarks by the Chief of Cavalry.

The Executive Council appointed Colonel Fenton S. Jacobs, Cavalry, Editor of The CAVALRY JOURNAL for the calendar year, 1942, or until relieved during the ensuing year.

The meeting then adjourned and refreshments were served.

★ ★

With All Your Might

. . . To fight out a war, you must believe something and want something with all your might. So must you do to carry anything else to an end worth reaching. More than that, you must be willing to commit yourself to a course, perhaps a long and hard one, without being able to foresee exactly where you will come out. All that is required of you is that you should go somewhither as hard as ever you can. The rest belongs to fate. One may fall—at the beginning of the charge or at the top of the earthworks; but in no other way can he reach the rewards of victory. . . .—JUSTICE OLIVER WENDELL HOLMES.

★ ★

Enlisted Communication Courses At the Cavalry School

By Lieutenant Thomas R. Warner, Cavalry

THE ultimate purpose of all military training is the assurance of victory in the event of war." (FM 21-5, Military Training.)

Victory in these days of blitz techniques and gas engines hinges on effective communication within all units, large and small. It is the aim of the communication courses at The Cavalry School to provide our Cavalry Regiments and Reconnaissance Troops with trained communication personnel capable of making these units the most effective in any army. In this article is a description of the course itself, suggestions for the selection of students by unit commanders and recommendations for the most effective use of the graduate upon his return to his organization.

The present emergency has, of necessity, shortened the length of time available for instruction. A course which could easily be spread over nine months without materially increasing the scope of instructional material, has been compressed into a twelve-week period; however, it is not a condensation or adoption from any other. It is a practical course, teaching the cavalryman's solution to cavalry communication problems. The entire course is based on the applicatory system of instruction and only the minimum time necessary devoted to lectures and conferences on "how or why" to do a particular job. Work is kept as practical as is possible with regard to the subject and the students are actually "doing" the job themselves in most cases.

Over one-third of the entire course is spent in practical field operation of cavalry radio equipment.

The first four weeks is devoted to basic communication instruction. Code practice begins the first day and the student receives one hundred thirty-four hours code practice in addition to any radio operation he may perform in connection with other classes. The objective is to reach a minimum operating speed of at least fifteen words per minute upon graduation. Eleven hours are devoted to conferences on safeguarding military information, organization of communication within the Army and various types of Cavalry units, message writing, messenger training and use, and the operation of panels and other specialized signalling devices and map reading. A special short course in message centers and cryptography embraces both conferences and practical work in all message center operations. Message centers typical of Cavalry units are stressed. The student receives training in the use of all codes, and the cipher device as well as practical instruction in work as message-center chief, code clerk and messenger. Simplification of message-center procedure and forms is stressed wherever possible. The student also receives a brief introduction to radio procedure during this initial four weeks.

In the second phase of four weeks' instruction the student receives a thirty-hour course in electricity and magnetism and basic principles of radio, thirty-six hours of radio procedure and practical field exercises. The objective of the electricity and magnetism course is to furnish the student with a background sufficient that he will understand the "how and why" of the operation of his radio and associated electrical equipment. The procedure course is divided between conferences, practical work on code tables and work sheets submitted by the student and its objective is to turn out qualified field radio operators.

Fifty hours, divided between the second and third phases are spent on radio sets and equipment. Here the student learns the actual construction and makeup of the various sets used by cavalry troops. He learns nomenclature, operation and functioning of the component parts of all receivers and transmitters. Considerable time is devoted to learning how to get his set operating properly and to keep it operating properly on the air.

During the final four week phase a limited number of the outstanding students, about twenty in number, are selected for advance instruction. These courses include advanced radio theory, radio shop work and main-

tenance. They are devoted to "trouble shooting" on cavalry communication equipment construction of simple transmitters and receivers and the proper use of shop tools. The entire class receives coaching for the Federal Communication Commission examination for amateur licenses and a Class C examination is held for each class with about half the class receiving licenses.

In the second four weeks' period the student spends the entire afternoon each day in the field and during the final phase spends every morning in the field actually operating cavalry radio equipment under field conditions. All work is practical and the student is checked both on his technical proficiency in operating the equipment and his ability to use proper operating procedures. The students handle all classes of messages and operate all types of tactical radio nets during this time. The major portion of every fourth week a total of approximately one hundred hours is devoted to command post exercises. During the first phase CPX's the student functions as messenger, code clerk, panel operator and message center specialist. During the second group he advances to duty as junior log and key operator. In the final phase he may act as message center chief, communication chief, radio section chief, senior operator or assistant instructor. This final series of CPX's is the "graduation ride"; students are familiar by this time with the technique and various requirements of the problem and are able to carry much of the responsibility. On return to their organizations they are prepared to assist their unit commanders in the preparation and conducting of similar exercises.

The soldier selected for this course should have an AGO aptitude rating of not less than 110-II-87. This rating is the result of tests given at the Induction Center or by the recruiting officer and is found on the soldier's Form No. 20. He should also be at least a grammar school and preferably a high school graduate, able to read, write and speak fluently, and able to perform basic operations of arithmetic including decimals and fractions. In addition he should have demonstrated a keen interest in radio, be able to receive code at a speed of at least five words per minute and should have attained this code facility in 45 hours or less, of instruction. Above all, he should be instructor or assistant instructor material, a prospective set or section chief if the full fruits of his instructions are to be obtained.

The graduates from this course on returning to their organizations should by all means be continued for a time at least, in communication work. The ratio of students authorized for this course to communications specialists required in the cavalry is very low. Therefore, these men should be used as instructors and technical leaders on their return. They will be good code instructors. Their procedure will be accurate and their knowledge of simple tests and checks, disseminated throughout the unit, will eliminate most set trouble. Probably most important of all, their enthusiasm and spirit, nurtured with a few old parts and tools, a place to work, and a little interest or friendly coöperation by the unit commander, will build an esprit and "will to communicate" that bad luck, bad weather and even bad orders cannot overcome.

The war in Russia involves a complexity and multiplicity of individual battles fought under conditions wherein individual commanders must operate on their own initiative. Unless complete chaos is to result, the high command must exercise some sort of control. The Germans accomplish this through the lavish use of radio combined with highly trained motorcycle messengers. Here, in the Ukraine wheat fields, we see a German short wave radio station receiving orders from the higher command echelon, with motorcyclists waiting to distribute them to the lower units. This is an important feature of the *Wedge and Kessel* pattern.

General Hawkins' Notes

SINCE the last writing of these Notes for the last number of The CAVALRY JOURNAL, the storms of war have descended upon us. In these circumstances I have looked backward over the Notes I have written for The CAVALRY JOURNAL during the last five years, and I find nothing that has been emphasized concerning tactical principles or the great need for larger cavalry forces that I would change on account of the developments brought about in this war to date.

The gallant defense of the island of Luzon by General MacArthur's forces, which has stirred the hearts of us all, has brought back to mind vividly the scenes in that country of more than forty years ago when we campaigned through those valleys, mountains and coast lines, traversing the swamps and swimming the rivers.

Visualizing those scenes, one cannot but be impressed with the value that a large force of modern cavalry would have now—December, 1941—in that country. Able to go anywhere and in almost any direction over Philippine terrain as was demonstrated in 1899—a large force of cavalry, now equipped with its powerful fire action, including .50 cal. machine guns, mortars, and 37-mm. cannon all in pack, could perform services that no other arm could undertake. In a situation like that now in the Philippines we need every arm of the service. We are lacking particularly in air force, armored force and cavalry. These three branches have different functions. All are necessary. The main force of infantry is of course the main reliance, and, it appears, we need much more of it than we have.

It is irritating to the professional soldier to hear the broadcasters and the press commentators say that what we need only is air force. Of course we need air force; the more, the better! But what we need in modern war is every branch of the service, not only one or two of them. Among these branches we need cavalry, and lots of it.

And so, in the Philippine campaign we could use, in addition to other branches, large forces of cavalry. Motorized infantry is very useful in defending coast lines, but such troops have their limitations. Speeding along the coastal roads, they can arrive at the scene of action first of any ground troops, but they must detruck to fight; and along the coastal roads of Luzon it is difficult to get the empty trucks off the road to hide them from enemy fire and bombing. If bridges, crossing many streams running into the sea, are bombed behind or before these motorized troops they are trapped. While traveling along those open roads they may be bombed by enemy aircraft. They find it difficult to fight and get away, if such tactics are necessary. Useful and necessary as they are, their limitations are serious. Cavalry has its limitations also, but they are not the same as those of other branches.

Cavalry is not bound to roads. It could conceal its horses in the wooded mountain slopes. It need not suffer so much from bombing along the roads. It can fight to defend the beaches, and, if unable to hold the enemy off, it can get away in any direction and come back in another spot to fight again. In the meantime, infantry and artillery can be brought up to supplement the cavalry and, each in its own rôle, may combine to defeat the enemy. Air Force is used in combination with the ground troops. It may be the decisive feature. Again, it may not. It may be neutralized by enemy air force, or it may be beaten. Armored force too, in certain situations, may be the decisive factor. On the other hand, it may not be able to get forward or to use the particular ground. It is ridiculous to rely wholly on any one branch of the service; and still more is it ridiculous to rule out or discard any one branch such as the cavalry.

In the broad valley of Luzon there is a varied terrain —difficult rivers, dry, firm ground in the rice paddies in the dry season, wet spongy ground in the rice fields during the wet season, swamps of considerable size and many wooded mountains. None of these conditions stopped our cavalry forty years ago, but they stopped all other troops. Similar conditions might prevail anywhere else—on this continent, in other large islands, or other parts of the earth.

The power of air force over the sea has been given startling demonstrations recently. Its power in land operations is also tremendous. But the war in Russia should show all laymen as well as soldiers that we must not put all our eggs in one basket. Notwithstanding the recognized power of air force, it has taken millions of infantry, artillery, cavalry, armored forces and antitank forces, engineers, signal troops and supply troops—all working on the ground—to stop the great German attacks made by similar troops.

I have been pleading for years for large forces of cavalry in our army in order to fill out and complete our ground armies. This necessity was belatedly recognized in the last part of the war in Spain. According to the news despatches, Russia seems to have recognized it. France and England failed to recognize it in 1940. Germany failed to recognize it because she did not have to, having beaten her unprepared enemies with overwhelming forces that had little opposition. Perhaps she is realizing her mistake now. Large forces of cavalry might have kept up her élan when her tanks bogged down or were met by competent antitank forces in the hands of her Russian opponents. Large forces of Ger-

NOTE: Brig. Gen. H. S. Hawkins (Retired), now is on active duty.

man cavalry of the modern variety might have spelled the difference between her present frustration and complete victory before the great winter set in. Not only at the front but also guarding her long line of communications, a numerous cavalry was indispensable.

An article in the last CAVALRY JOURNAL, by Major R. L. Howze, shows how cavalry might have helped the English to defend the island of Crete. Of course, it was not to have been expected under the circumstances that any cavalry should have been there. In the first place, England has neglected to keep any cavalry in her army ready for any possible use. You cannot have cavalry where it is needed if you have no cavalry. It would have been easier, however, for us to foresee that we should need cavalry in the Philippines. The one cavalry regiment there has apparently done splendid service.

Without going into the question of what might have been foreseen in the Philippines, there may yet be time here at home to increase our cavalry forces to somewhere near their proper size if we commence at once. When they are needed they cannot be improvised. So much remains to be done to complete our army that no one can blame the authorities for doing only a few things at a time, but cavalry is not one of the things that should be deferred.

Some persons claim that it is difficult to ship cavalry overseas. It was not any more difficult to ship cavalry to the Philippines in 1899 and 1900, once the need for it was appreciated, than it is now to ship armored forces. Even the Japanese, with their many theaters of operations, and their lack of much cavalry experience, are said to be shipping cavalry to the Philippines. Evidently they appreciate the need for everything.

Very few of the thousands of officers in our army have more than an elementary knowledge of branches of the service other than their own. In time of peace we have attempted to remedy this defect by instruction in our service schools. But as far as cavalry is concerned, it must be acknowledged that this has met with only mediocre success. Thus, the cavalry has not been well understood by the great mass of our officers. The fault, to some extent, may lie with the cavalry itself. It is difficult to say. But there are some factors which can be recognized as partly responsible. A great many of our finest cavalry officers were transferred to the Armored Force under the name of "Mechanized Cavalry." In my opinion, there is no such thing as mechanized cavalry. Cavalry is cavalry, with here and there a few mechanized elements, the personnel of which is composed for obvious reasons of cavalrymen, but primarily a cavalry unit is composed of horsemen. Those cavalrymen who have been transferred to the Armored Forces are no longer cavalrymen, no matter how they are carried on the army lists. The loss of these cavalrymen is a severe blow to the cavalry and to the army. What real cavalrymen are left are too few to spread the knowledge throughout the service of what our modern cavalry is. Instead of increasing our cavalry we have seriously diminished it.

The Russians have from thirty to fifty divisions of cavalry and are making good use of them. No one but a real cavalryman knows exactly how they are doing this. I have already given an inkling of what cavalry might have done in the Philippines, but the limitations of this paper will not permit many details of modern cavalry action. One can get a little idea when he reads of Russian cavalry cutting off German infantry battalions from their main bodies, especially motorized infantry; or the flank attacks upon mechanized units resulting in delay or crippling or destruction of such units.

There is yet time to increase our cavalry materially. Perhaps it will be done.

Exploitation

"I say, then, that when you have gained a victory, you ought by all means to pursue it, and to imitate Julius Cæsar rather than Hannibal in that respect; the latter of whom lost the empire of the world by trifling away his time at Capua, after he had routed the Romans at the battle of Cannae. Cæsar, on the other hand, never rested after the victory, but always pursued and harassed the enemy after they were broken and flying, with greater vigor and fury than he attacked them at first."

—*The Art of War*, Page 162, Book 4, Machiavelli.

The "Battle of Bridges"*

LIEUTENANT GENERAL McNAIR, Director of the Second-Third Army Maneuvers, named the latter phase of the 1941 Louisiana maneuvers the "Battle of Bridges." Every movement of this phase had entailed the blowing of bridges or construction of pontons. Every strategic move hinged upon the Red or the Sabine river. No little part was played by the Second Cavalry Division in this bridge warfare. Their zone of action first on the Red and later on the Sabine put them in direct position to make the most of the bridges (or absence of bridges) as the Division withdrew toward Shreveport.

The nature of the enemy opposing the Second Cavalry Division during this phase, First Armored Corps less the 1st Armored Division, the 2nd Infantry Division, and the First Cavalry Division with the 56th Cavalry Brigade attached, made the absence of a bridge of vital importance; importance that meant days of time and thousands of gallons of fuel. The blowing of the Bon Weir bridge caused the Second Armored Division a trip of 350 miles; captured quartermaster records show a great quantity of fuel purchased from local dealers with cash, to make this move.

Of the many missions calling for skill and daring, perhaps the most outstanding was the one that called for the blowing of the Burr Ferry and Bon Weir bridges on the nights, September 23rd and 24th. The Division Commander, Major General John Millikin had decided that these bridges must be blown if the strong offensive of the Third Army with the First Armored Corps was to be held up.

Both bridges were deep inside enemy lines; approach by road with the necessary amount of TNT was impossible; air attack would not insure complete destruction by umpire rating. The only certain way to put them out was the perilous river trip that General Millikin decided upon. Major Harry O. Paxson, his division engineer, assured the General he had an outfit that could do the job.

*By Public Relations Section, Hq. 2d Cav. Div.

Major Paxson assigned to Captain Charles M. McAfee, Jr., and Troop A, Ninth Engineers, the difficult mission. The mission was of such a nature that Captain McAfee was forced to pick a crew in which each member was adept at demolition work and also qualified to handle an assault boat in the river. His choice was First Sergeant Stillwagon, Sergeants Allen and Kelly, Corporal Patterson and Privates Dockter and Smith. Equipped with two assault boats, one outboard motor, 600 blocks of TNT, one case of Type "C" rations, field equipment, and armed with pistols, the detail was loaded on a one-half ton truck and ponton trailer and transported to the Sabine River east of Toledo, Texas.

At 12:30 PM after all arrangements were thoroughly checked, the detail left their launching spot, the motor boat towing the rear assault boat. The original plan called for both boats to proceed to the Burr Ferry bridge and prepare it for demolition, with Sergeant Kelly, Corporal Patterson and Private Dockter to "blow" it at the zero hour. However, plans, no matter how carefully laid, oftentimes break down under adverse conditions. Such was the case in the early morning hours of Wednesday, September 24th, when the leading boat hit a snag, puncturing a hole in the bottom of the boat. It was a cold, miserable group that shivered around the smudge fire they managed to build at 4 AM that day, far from their destination and the chances of completion of any part of their mission growing dim.

At 6:30 AM, with the rain pouring from a low overcast sky that made aerial observation improbable, Captain McAfee ordered Sergeants Kelly and Allen, and Privates Dockter and Smith to move onto Burr Ferry where the two men were to remain to prepare the bridge for demolition and the other two would return to pick up the rest of the crew. Soon after their departure, Captain McAfee with the help of Sergeant Stillwagon, assembled a makeshift patch that succeeded in keeping his boat afloat. Starting downstream at once they soon made contact with the boat returning to pick them up. At 12:30 PM, they reached the Burr Ferry bridge and Captain McAfee, after checking the charges, ordered Sergeant Kelly and Private Dockter to remain behind and blow the bridge at the appointed time. Corporal Patterson was left to act as Engineer Umpire. The Burr Ferry bridge, left unguarded by the enemy, was a simple matter to charge and later destroy.

About 1:00 PM, Captain McAfee, and the remainder of the detail started for the Bon Weir bridge and after almost eleven hours of continuous travelling, under what might be called story book conditions, in that they were going into the teeth of a tropical hurricane, four thoroughly drenched engineers grounded their

boat fifty yards upstream from the Bon Weir bridge.

In order to take stock of the situation Captain McAfee, Sergeants Stillwagon and Allen crawled through the heavy brush, along the bank, to a point near the base of the bridge. Here at Bon Weir the bridge was guarded and enemy traffic was crossing continuously—it was not going to be an easy matter to destroy this vital link between Louisiana and Texas. At this juncture, Sergeant Stillwagon was sent ahead as a scout, and after making an estimate of the situation, circled the lone guard on the east end of the bridge and walking boldly up to him, drew his pistol, saying, "Don't say a word, you're my prisoner."

Now, things began to happen at an increasingly fast pace. The guard was turned over to Captain McAfee for questioning. Sergeant Stillwagon ran back to the boat for TNT—by the time he returned (and it was just a few minutes) Captain McAfee had captured two more Blue soldiers who wandered down to the river bank. Now came the important job of placing the charges on the bridge itself and in plain sight of the continual Blue traffic.

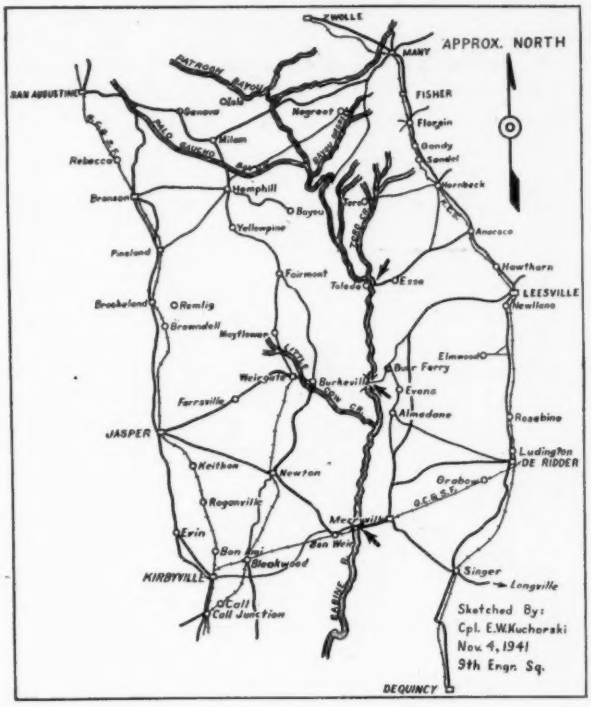
Almost at once, Sergeant Stillwagon, loaded down with TNT, made ready to lay the charges. Taking advantage of the total darkness and the ever-present mist, Sergeant Stillwagon worked his way one-third of the distance across the 700-foot span, when he noticed a light, flicking on and off, coming toward the east end of the bridge. Returning to Captain McAfee, he reported what he had seen and the two of them went forward to meet the person carrying the light. Just as they were about to come within range of the light's beams, Captain McAfee drew his pistol and said, "You are my prisoner."

"Why capture me? I'm a Blue, too," jested a young lieutenant, officer of the guard, who was carrying the lantern.

Even then he did not realize he was talking to a member of the opposing forces and Captain McAfee said, "Well, I am not—I am a Red. As an officer, you know the rules of warfare. In accordance with those rules you are my prisoner and are not allowed to try and escape."

Leaving Private Smith to guard the prisoners, Sergeant Stillwagon, with Sergeant Allen preparing the charges, completed the demolition work on the entire bridge in one hour and five minutes. Captain McAfee during this hour stood at the end of the bridge, acting the part of bridge guard, Blue Army. At 2:30 AM on Thursday, September 25th, the bridge was completely charged and ready to be blown. (See Par. 25 GHQ, Umpire Manual for requirements.)

The mission a success, Captain McAfee and Sergeant Stillwagon decided to capture a Blue vehicle, dash through the Blue lines and report to the Headquarters of the Second Cavalry Division. They chose the last truck in a convoy passing over the bridge and, before leaving, instructed Sergeant Allen to set the charge off



after their truck was across the bridge. A moment later the bridge was destroyed. Almost immediately traffic was halted and high-ranking officers of the Blue Army arrived on the scene wanting to know what was holding up their advance. An engineer umpire, First Lieutenant Gibbs, Company C, 110th Engineers, was present to verify the authenticity of the demolition. The Assistant to the Army Engineer personally inspected the bridge charges and questioned Sergeant Allen on all phases of the mission. Although the officials of the Blue Army were loath to admit that the enemy had blown two important bridges under their very noses, they had to abide by the rules and by late afternoon were ferrying their rations across the Sabine River in assault boats.

Unluckily for Captain McAfee and Sergeant Stillwagon, the captured vehicle proved to be a meat and ice truck. Rather than have the food go astray, Captain McAfee allowed the truck to go on its way in Newton, Texas, warning the driver to keep quiet. Instead, he drove about two blocks and started shouting, "Two Reds are in town." In a few minutes the town, packed with Blues, was a beehive of activity.

After hiding in houses, jumping fences, running through alleys, the Reds stumbled on a lieutenant sitting in a ½-ton reconnaissance car directing solo motorcyclists in the search. Before the young officer knew what was up, Captain McAfee had him covered with his pistol and once again it was, "You are my prisoner." The officer objected to the capture and in keeping with the rules of the war games, Captain McAfee administered the "coup de grace," as it were.

At this point, Captain McAfee, Sergeant Stillwagon

and the captured lieutenant made off in the Blue "peep" for the Red lines. Before long they came to a bridge blown by the Red forces. After abandoning their captured "peep," and walking a few miles into Red territory, they decided to take a well-earned rest—their first "cat nap" in almost three days.

They awoke at 8:30 AM, Thursday, September 25th, caught a ride on a Red Army truck to the 2d Cavalry Division Headquarters and reported to Major General Millikin—it was a job well done.

While this was of great strategic importance—no less important in the "battle" was the blowing of several more bridges by the 2d Cavalry Division Engineers.

In the immediate maneuver area three important bridges down the Sabine from Logansport northwest were originally prepared for demolition by the 2d Army Engineer troops. However once the 2d Cavalry Division withdrew to defensive line with their backs to the Sabine River the job of actually destroying the bridges fell to the 9th Engineers. A liaison officer of the 2d Army Engineer Headquarters with the complete data of preparation of Sabine bridges for demolition turned over the guarding and demolition of these bridges to the 2d Cavalry Division. As soon as the change of command took place the Division Engineer Major Harry O. Paxson sent Engineer detachments to the bridges at Logansport, Highway 71 and Highway 59, and pending the decision as to which bridges would be utilized if further withdrawal was necessary, all bridges were heavily guarded.

At Logansport the bridge guard left in charge of Sergeant Robert Stillwagon (brother of Sergeant Arthur Stillwagon, member of the detail at Bon Weir and Burr Ferry) had definite orders to execute the demolition of the bridge only on the personal orders of Major General John Millikin, his Chief of Staff, Lieutenant Colonel William Bradford, or the Division Engineer, Major Harry O. Paxson. In each case these orders if not delivered in person were to be accompanied by a code word, i.e., "Arthur," the first name of Sergeant Stillwagon's brother.

The opposing Blue forces tried time and time again to capture the bridge but to no avail. In one instance Blue soldiers commandeered a civilian car and tried to bluff their way across the bridge but that attempt was nipped in the bud.

Not only was the bridge guard plagued by the Blue forces but his own Red forces also tried to have Sergeant Stillwagon blow the bridge before the 2d Cavalry Division or all its attached units were across. Finally, after the Division was forced to retire across the Sabine via the bridge at Highway 71, and Blue pressure on the Logansport bridge became critical, Lieutenant Colonel Bradford ordered its demolition.

About this time all remaining bridges over the Sabine, except Highway 71, were ordered destroyed, and as often the case in actual warfare, insructions for the demolition of the bridge at Highway 59 went astray. This probably would not have occurred if the Division Engineer had radio communication with his bridge guards. Blue (mechanized) advance guards were approaching Carthage at the intersection of Highways 59 and 79 and General Millikin directed the Division Engineer to verify personally the destruction of the Highway 59 bridge over the Sabine. A convoy of six infantry (armored) half-tracks were dispatched to the scene and under the direction of Major Paxson this last important link between the Red and Blue forces was destroyed. Once again, the demolition of important bridges had stalled the Blue advance.

If a bridge is destroyed without regard to enemy position, the enemy often is able to change his plans or send ponton equipment ahead so that no delay will result from the loss. There is a strategic time to blow a bridge which, though dangerous as a mission, catches the enemy after they have come to depend on that bridge and their plans to entail its use. Such was the case of the Bon Weir where its loss had not been foreseen and no ponton equipment was available for at least twelve hours. Had either the bridge at Bon Weir or Logansport been blown days earlier, little delay or confusion would have resulted.

Learning from the history of the disastrous French withdrawal, when the Germans invaded the Lowlands, over-centralization of bridge-blowing was avoided by the Second Army. In its place, a plan of decentralization was adopted as a "time-saver" and as a means of insuring the demolition of all bridges vital to the advance of opposing forces. No bridge was left for a higher command to blow, only to fall intact into the hands of the enemy. Decentralization was Second Army's insurance against such possibilities.

In one instance, this plan of decentralization backfired in that a squadron of the 4th Cavalry (attached to the 2d Cavalry Division for maneuvers) was trapped when a bridge was blown behind them. They effected their escape but only after swimming two troops across the river and sending vehicles nearly one hundred miles to the west.

Here, once again, the "bugaboo" in modern warfare, closer coöperation between land and air forces, raises its head. Had notification of the withdrawal been served on the attached air unit and, in this particular instance, had the air unit dispatched a plane to spot friendly troops on the wrong side of the river, destruction of the bridge could have been held up to allow the 4th Cavalry to make a faster and less expensive crossing.

The lesson to be learned from this "Battle of Bridges" is that every bridge must be handled in a way the tactical situation dictates. While care must be taken to insure that the bridge in question is blown, a commander must be sure that the action must not cause hardship or disaster to friendly units. Somewhere along the line between centralization and decentralization there is a happy medium—built possibly on coöperation, initiative, and a share of good luck.

Horsemanship Training
At Our CRTC

By Lieutenant Colonel E. M. Burnett
and Major Henry M. Zeller, Cavalry

IN twelve weeks training at the Cavalry Replacement Training Center it is impossible to make finished horsemen of recruits who have never seen a horse before, however, as they join their regiments, the men trained in the horse troops will at least "fit in." The goal of the Horsemanship Department, which is responsible for the planning and supervision of horsemanship training, is to give these men sufficient basic horsemanship instruction so that it will be necessary for them only to acquire experience in order to become excellent cavalry troopers.

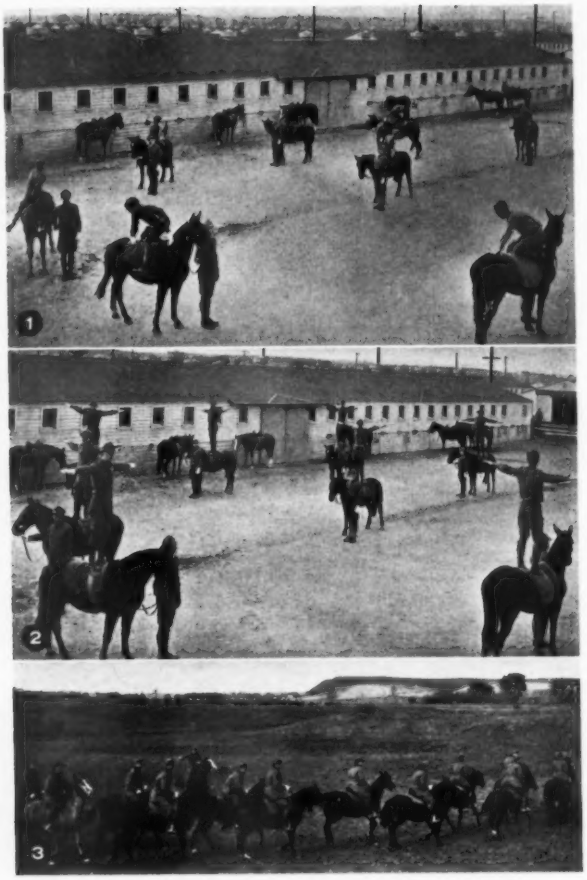
Quantity production in recruit training is a very different affair from training recruits in a regimental recruit detachment under peace-time conditions. In the "old days," if a regiment had twenty recruits (which was a fairly large number to have at one time), they were organized as a platoon with an officer in charge, a sergeant or two as his assistants, and with a corporal as squad leader of each squad. At the CRTC one non-commissioned officer has the whole job by himself. Furthermore this non-commissioned officer himself may be a recent graduate of the CRTC. The smallest unit commanded by an officer is the half-troop, consisting of four platoons. Thus it can readily be seen that these non-commissioned officer platoon leaders have a considerable problem of supervision and correction, particularly when instructing in horsemanship, since three or four squads of recruits can get out of hand rather quickly when mounted. Under these conditions it is necessary for the Horsemanship Department to plan the daily instruction periods in detail in order to save the officers and non-commissioned officers of the troops this work and to leave their minds free to conduct the instruction. Instruction methods must be kept simple and stereotyped.

As just mentioned, many of our non-commissioned officer platoon leaders are themselves recent graduates of the CRTC. These men are carefully selected, and since many high-type and well educated men pass through the CRTC as trainees, there is a great deal of material from which to select. Further, if any of the men selected as non-commissioned officers do not prove satisfactory, they can easily be replaced out of later increments. It is this opportunity to select replacements for any non-commissioned officers who are not actually excellent that makes horsemanship training practicable with the low ratio of cadre personnel to trainees. Each platoon leader has what was actually an officer's job in peace-time.

In order to provide help to the platoon leader in the supervision of his unit, the eight best trainees in each troop are designated trainee non-commissioned officers, and one is assigned to each platoon as file closer. Also, selected trainees are assigned as squad leaders. This use of trainees as acting non-commissioned officers, besides affording additional supervisory personnel, gives the men selected an opportunity to show and develop their leadership qualities. This, in turn, gives the troop commanders an opportunity to choose those men they desire to keep as non-commissioned officers of the cadre.

As the CRTC has progressed and experience has been gained, the course in horsemanship has become clearly delineated, and methods are exact and definite. Three phases of horsemanship instruction from which excellent results have been derived are worthy of comment on account of the results obtained and because they are methods not generally used in the service. These are, first, giving a week of dismounted horsemanship instruction prior to the first occasion when the trainees are allowed to mount, second, the use of elementary gymnastic exercises, bareback, at the halt and walk, and third, the use of routine exercises at the beginning of each mounted period. The importance of both the first two phases of training mentioned above lies in the fact that they tend to overcome apprehension, of which there is a great deal since many of our trainees have never before mounted a horse.

During the first week, training given under the Horsemanship Department is all dismounted, and consists of instruction in the duties of stable police—including information as to safety precautions to be followed when working around horses, instruction in cleaning equipment and grooming, and instruction in the adjustment of saddle equipment. It is desirable of course that the trainees be well grounded in these basic subjects at the outset of their training, but the principal advantage of this dismounted week is in overcoming apprehension. When they first approach horses some of the trainees are so apprehensive that they retreat hastily at the slightest move of a horse, but by the end of the week of dismounted instruction most of them look like old troopers when working around horses on the ground and are fairly well relaxed when they first mount during the second week of training. Just working around the



1—1st Platoon, Troop D, 1st Training Squadron at monkey drill, which is part of the fifth riding lesson. The platoon leader is Sergeant R. B. Williams, who came to the CRTC from the 7th Cavalry as a member of the original cadre. The exercise is "face to the rear, starting with the legs crossed in front of the body, and reverse." 2—At monkey drill, fifth riding lesson. The exercise is the "full stand." 3—On the drill ground during the fifth riding lesson. This is part of the same lesson during which the pictures of the monkey drill exercises were taken. Notice that many of the men already have good positions in the saddle. This troop is commanded by Captain Victor L. Olsen, Cavalry.

stables and horses seems to impregnate them with a bit of the "stable atmosphere." Furthermore, this dismounted period forms a desire to ride, so that the men begin to ask their non-commissioned officers when they are going "to get to ride."

The bareback gymnastic exercises or "monkey drill" exercises serve the same purpose of overcoming apprehension, the exercises given being extremely simple and being given only at the halt and walk. These exercises start during the third riding lesson and continue through the third and fourth weeks of training. When they begin the exercises some of the men fall off frequently, but as they realize they are not hurt they gain confidence, and each man thinks it very funny when somebody else falls off. The result is that the exercises furnish general amusement and consequent relaxation. The exercises used are as follows:

Vault on, near side, to straddle seat;
Vault off, near side;
Knee stand;
Face to the rear, starting with the legs crossed in front of the body, and reverse;
Vault on, near side, to side seat;
Full stand;
Scissors to rear, and reverse.

The necessity to keep instruction methods simple and stereotyped implies reduction to a routine. This is particularly applicable in equitation, therefore the Horsemanship Department has published a "Pamphlet on Mounted Exercises." This pamphlet is pocket-size, and is carried by officers and non-commissioned officers at all horsemanship instruction. Very briefly, it lays out the entire course in equitation in the form of exercises to supple the rider and to force him into the correct seat. After the tenth riding lesson, these exercises become a routine which is repeated daily. This routine obviates for the platoon leader the necessity of planning his instruction, thus enabling him to concentrate on the correction of errors, etc. Also, it serves in the same way to compensate for lack of experience on the part of the platoon leader in conducting equitation instruction. This effect of the use of the routine is particularly helpful, since the ability to conduct equitation instruction is an art, not a science, and is acquired only through experience. The exercises given in the pamphlet furnish an irreducible minimum of instruction, other training publications may prescribe further steps in each lesson, but since the pamphlet can readily be carried in the pocket, it is always there to refresh the memory of the instructor.

The routine given to be followed after the tenth riding lesson is a satisfactory method for use in further equitation training of graduates of the CRTC after they have joined their regiments. Since this is the case, the routine is quoted below:

1. Spend five minutes on SUPPLING EXERCISES AT THE WALK WITHOUT STIRRUPS, reins loose and floating. Exercise from toes to head:

(1) Rotate the feet.

(2) Alternately flex the knees.

(3) Rotate the right (left) arm vertically and raise and lower the toes.

(4) The right (left) arm extended horizontally, palm up, rotate the body by twisting at the waist, right to left and left to right, eyes following the hand.

(5) Rotate the shoulders—forward, backward, upward, down.

(6) Rotate the head and flex the neck—forward, right, back, left, forward, up.

2. Spend five minutes at the SLOW TROT WITHOUT STIRRUPS, steadying the seat with the hand on the pommel if required. Then WALK WITH STIRRUPS for three minutes.

3. Spend two three minute periods on SUPPLING EXERCISES AT THE GALLOP, broken by a minute's walk. (Use any exercises in 1, above, that can be done with the feet in the stirrups.)

4. Give this exercise at the WALK:

With the right hand on the neck, stand in the stirrups, driving the heels and the knees down, feeling the weight go out through the heels; then with the BACK HOLLOWED, chest up, hip joints to the rear—sit down ONLY AS FAR AS THE THIGHS WILL PERMIT. Then take the test (without the hand on the neck): can you stand up in the stirrups in balance, without first leaning forward or making any preliminary adjustment of your position?

5. Give this exercise at the TROT:

With the right hand on the neck, stand in the stirrups, driving the heels and the knees down, KNEES FORWARD OF THE STIRRUP STRAPS, stirrup straps vertical; as you do this feel the heels driven down at each beat of the trot; then with the back hollowed, chest up, hip joints to the rear—sit down AS FAR AS THE THIGHS WILL PERMIT, on every other beat—in other words, post.

6. Spend three minutes at the GALLOP WITHOUT STIRRUPS, allowing the men to hold on to the pommel and lean back, taking the motion of the gallop in the loin, thus getting the rhythm of the gait.

7. Put the class at the GALLOP WITH STIRRUPS and check positions for the following: heels thrust far down with the stirrup straps vertical, buttocks to the rear, back hollowed, fork deep in the saddle—in all, a light seat. If the class does not qualify in this respect, REPEAT EXERCISES 4 AND 5.

Whether or not a trooper can ride his horse makes little difference in the field if he has no idea as to how to take care of him, so increasing emphasis has been placed on horsemanship as the corps of instructors—at first rather green—has gained experience and knowledge. All that the rank and file trooper should know, is taught, and as this comprises a good deal of information, the instruction cannot be imparted in such a short period so that the trainee will remember it all, even with constant emphasis and considerable repetition, both in principle and in detail. Even in the case of those men who have ridden prior to coming to the cavalry, all this instruction cannot be permanently absorbed, since their previous experience means little, horsemastership being largely a lost art in the civilian population. Above all, emphasis is placed on the fact that the trooper and his horse are an inseparable unit, and any fault or neglect of the man which even *tends* to put his horse out of action is a move toward cancellation of himself as a cavalry trooper.

No attempt is made to teach anything beyond the simplest equitation, that is, the rider should allow his horse to move with head and neck extended, on a lightly stretched or loose rein, while sitting the horse correctly so that he can function best. Since this is the case, and since probably no trainee will completely absorb all the horsemastership he needs, it is desirable that all graduates of the CRTC receive further training in horsemanship and horsemastership after reporting to their regiments, just as they should in all their duties. This is equally as important as further training in tactics, the use of weapons, etc. In other words, the CRTC graduate is well grounded as a basic cavalry trooper, but he should receive further training to absorb him into the particular combat unit which he joins.

How to Be a Successful Soldier

By Colonel Walter J. Siegmund, ORC

1—Observe everything within your notice.

2—Learn what your duties are and do them cheerfully and efficiently.

3—Be alert and on time.

4—Obey orders, but be sure you understand them; if not, ask questions.

5—Put all your energy and drive behind everything you do.

6—Keep yourself and your equipment neat and clean.

7—Indulge in clean recreation off duty.

8—Put duty before pleasure.

9—Pick with great care your associates off duty, and avoid those who may try to influence you to indulge in things you know might injure you.

10—Mind your own business, and don't become a part of grapevines spreading rumors among your fellow-soldiers. If you want information or need advice, go to your commanding officer.

11—When things go wrong, take it on the chin like a man. Don't be a cry-baby, but if you have a just complaint for the good of the service make it to your commanding officer.

12—Don't try "bull" to get by—it will catch up with you, and always remember that no man ever had a good enough memory to become a successful liar.

13—Don't be a boot-licker.

14—Don't try to gain recognition by hanging around headquarters.

15—Cultivate the respect of your fellow-soldiers, and you will win the respect of your superiors and promotion.

16—Attend religious service.

17—Don't forget the folks at home are waiting for a letter from you regularly.

18—Don't borrow or lend money—it makes enemies.

19—Save some of your pay.

20—Remember this always—that your sense of right and wrong is your greatest leader. Do all those things you know are the right things to do, and don't do any of those things that you know are the wrong things to do.

21—Resolve to leave the service a bigger and better man morally and physically—a credit to your family and your country.

The Officer and Mechanized Paper Work

*By Lieutenant Colonel F. W. Drury, F. D.**

ONE of the contributing factors which resulted in the loss of the Battle of France was the clogging of highways by refugees. This situation so slowed up the military movements of the defending forces that the highly mechanized, well-coördinated divisions of the enemy were able to cut off and encircle the French forces, section by section, until, in hopeless confusion, utter rout, and complete disintegration they surrendered.

When almost overnight an army increases in size from 200,000 to 2,000,000, the sudden enormous increase in army paper work tends to have the same effect on organization programs, reception procedures, and training operations as that produced by the congestion of arteries of transportation in the Battle of France.

In the early days of this Republic, army paper work was relatively simple, but even then it was burdensome. George Washington, for example, carried with him during the Revolution a relatively large, bound ledger in which he recorded advances of funds received from the chief finance officers of the Continental Congress, and against which he recorded his personal expenditures as well as those of the disbursing officers whom he had appointed to assist him.

Since the time of Washington, paper work has grown more complicated during each succeeding decade—particularly during each war period, and, until recent years, has been conducted largely on a manual basis with visible and permanent record forms. The last three decades, however, have seen a very rapid advance in the use of labor-saving devices throughout the business world for the handling of paper work. First came the typewriter with carbon paper and duplicate copies, inventions which revolutionized methods of writing communications and methods of filing. Second came adding machines and procedures for periodic summarization of accounts and reports. Third came the visible posting bookkeeping machine with the related development of loose-leaf, post binder ledgers. Fourth came visible card files for the maintenance of data requiring quick and ready reference. Fifth came the development of calculating machines by which complicated operations involving multiplication and division could be handled quickly and accurately. Next within very recent years, has come the rapid development of electrical accounting machines utilizing cards with holes punched therein. And, finally, have come devices for duplicating and preserving certain records and data by a variety of methods of photographic reproduction.

These efficient labor-saving devices have made it possible to administer successfully in America great business organizations on the size and scale previously considered impossible.

Many of these progressive inventions can well be adapted to use by the Army, for the administration of great assemblies of men and material is one of the major problems of modern warfare. The handling and digesting of masses of army papers have become almost as important today as is ability in tactical operations. Countless examples might be given to show how knowledge of the latest mechanical devices greatly simplifies paper work and general administrative procedure. Consider the problem of purchasing and storing supplies and equipment at any one of the numerous warehousing points. The handling of such matters was complicated for an army of less than 200,000. Imagine the complications for an army of 2,000,000, and then 4,000,000 unless considerable study is given to the use and proper application of every possible time and labor-saving mechanism. Or take the greater problems of today with which a large army must cope. First, consider the paper work of the budget in the accounting and statistical controls involved in reducing the time between proposing an army program and obtaining the approval of the program through an appropriation by Congress. Second, consider the planning and administrative paper work in accounting and reporting controls necessary to reduce the time lag between the availability of funds and the actual receipt by the army of supplies and equipment from private manufacturers. Third, consider the management problem of bringing together gun, airplane or tank with properly trained men, and blending the whole into a well-coördinated, smooth-working entity. Fourth, consider the problem of day-to-day operating control of the mobility, flexibility, and readiness for action of great assemblages of men and equipment in thousands of units, in hundreds of divisions, in a score of corps areas and departments in the armies of the entire Nation.

Go one step farther. Contemplate the relatively elemental problem of maintaining and supplying the thousands of items required today in a single modern, mechanized "Blitzkrieg." The motor transport of hundreds of thousands of men and equipment forty and fifty miles a day—the gas, the oil, the spare parts, the

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*In collaboration with Mr. Walter A. Bowers, Executive Assistant U. S. Treasury Department.

repair items, the service items, the storage and stock inventories, the reserves—all require daily and hourly keeping of records and accounts and preparation of statements and reports at hundreds of points. These, in turn, must be summarized at subcontrol points, and, finally, subcontrols must be brought together into one coördinated picture for the Commander in Chief. As a Nazi general said of the modern "Blitz," "It is paradise for a tactician but hell for a quartermaster."

Therefore, in order to prevent delay, confusion, and congestion, modern mechanized procedures and mechanical devices must be utilized to simplify and digest the great mass of army paper work until operations are as smooth, speedy, and efficient as they were when the army was one-tenth its present size. Paper work and administrative mechanics in the rear must today be ahead of military operations—not behind.

American inventive skill and genius offer a wider variety of mechanical devices and time and labor-saving office equipment than is available in any other country on earth. Micro-files, tabulators, calculators, selectors, viewers, card punchers, sorters and countless other devices and gadgets now digest in a few hours a quantity of paper work that formerly could have been handled only in months and years.

Probably the most important of the modern mechanical devices are those which concern recording and accounting. Only a few years ago this type of work was done by bewhiskered gentry sitting on high stools at old-fashioned desks and using quill pens, green eye shades, and ornate paper cuffs. Today, a Twentieth Century stream-lined Miss sits before an artistically contoured console, and, with practically no effort, and at the rate of several thousand a day produces, by electricity, thousands of hole-punched cards which thereafter are used to make entries in scores of types of ledgers. A half century ago this procedure would have been a godsend to the men on whose shoulders fell the problem of organizing and training armies.

Filing procedures have also been revolutionized. Modern equipment makes it possible to find mechanically in a few seconds the whereabouts and other information concerning any one individual no matter where he is located. Even though his card has been filed in the midst of a million or ten million other cards, it is readily obtainable. Further, by a combination of simple mechanical and photographic processes, thousands of tons of records can now be reduced in size and stored in space one-hundredth that required for the original papers and documents.

Hence, just as science was responsible for chemical warfare and aerial warfare, so today it is playing a vital part in developing means for expediting and simplifying army paper work.

It seems reasonable, therefore, to suggest that all officers, cadets and other potential officers of the modern armies be informed as to the uses and mechanics of the elementary devices for accurately simplifying, expediting, and summarizing paperwork and the related administrative management procedures; so as to secure economy of effort in the assembling and digesting of the vast quantities of facts and figures they will receive. Provision should be made for definite training along these lines. Then, and only then, will the army be completely *stream-lined*.

Criticism and the Inspector

It is unfortunate that most of us dislike and resent criticism, a dislike that makes it hard for those in authority to correct errors, with the result that the sense of these uncorrected errors often piles up till there is a sudden explosion over some comparative trifle, really the sum of condemnations for a series of faults. Inspectees should therefore be trained to accept criticism cheerfully. The wind can often be taken out of the corrector's sails by immediately admitting the error. After all, his main object is to see that it does not occur again; if he sees that the culprit is equally decided in the matter he is satisfied, and also pleased at not getting the usual dirty looks.—Lieutenant Colonel E. G. Hart, D.S.O., from the article "On Organization" in *The Royal Air Force Quarterly*.

ARMY TRAILERS

By J. Edward Schipper, M.S.A.E.*

EDITOR'S NOTE: *Upon request, this article was prepared by the Fruehauf Trailer Company exclusively for The* CAVALRY JOURNAL.

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THE greatest difference between warfare of today as compared with the last World War lies in the extreme advancement in mobility. A great part of this progress is due to improvement in automotive design. Much has come from the development of commercial transportation. It is but natural, now that we are engaged in war, that equipment developed for commercial highway transportation should be utilized, in many cases with only minor deviations, by the military forces.

During the quarter century which has passed into history between World War I and World War II, highway transportation in the United States has developed from a mere infant into a giant industry. We have in this country alone approximately three and one-half million men who make their living driving trucks. These are backed by many more millions whose job it is to build, equip and maintain these trucks.

An interesting index of the growth of this industry in the United States may be furnished by a contrast between the hard surfaced roads in 1914 at the beginning of the last World War and in 1939. The two maps shown, Figures 1 and 2, illlustrate the hard surfaced roads in 1914 and today. As will be noticed in 1914 there were practically no interstate, and certainly nothing that even approached, transcontinental hard highways. Today we have a network which embraces the entire country and adds tremendously to the strategic strength of defense as well as to our ability to decentralize industry and in general utilize efficiently the resources of the country.

It is but natural that along with development of this network of highways progress in equipment has been made. Today about 90 per cent of the long-distance hauling by highway in this country is done by truck-trailer. The trailer idea is based on the old established theory that "a truck, like a horse, can pull more than it can carry." Big loads can be rapidly and efficiently transported by trailer, and the vehicle itself, because it is articulated, has the advantage of extreme highway maneuverability. It is able to turn in less than its own length and furthermore, has an advantage from a military standpoint as well as commercial, that it does not tie up a power plant when stationary as the tractor unit can simply drop its load wherever it may be and go on its way to pull other trailers.

In commercial use truck-trailers are frequently employed on what is known as a "shuttle operation." In

*Advertising Counsel, Fruehauf Trailer Company. (Member, Society of Automotive Engineers.)

Figure 1

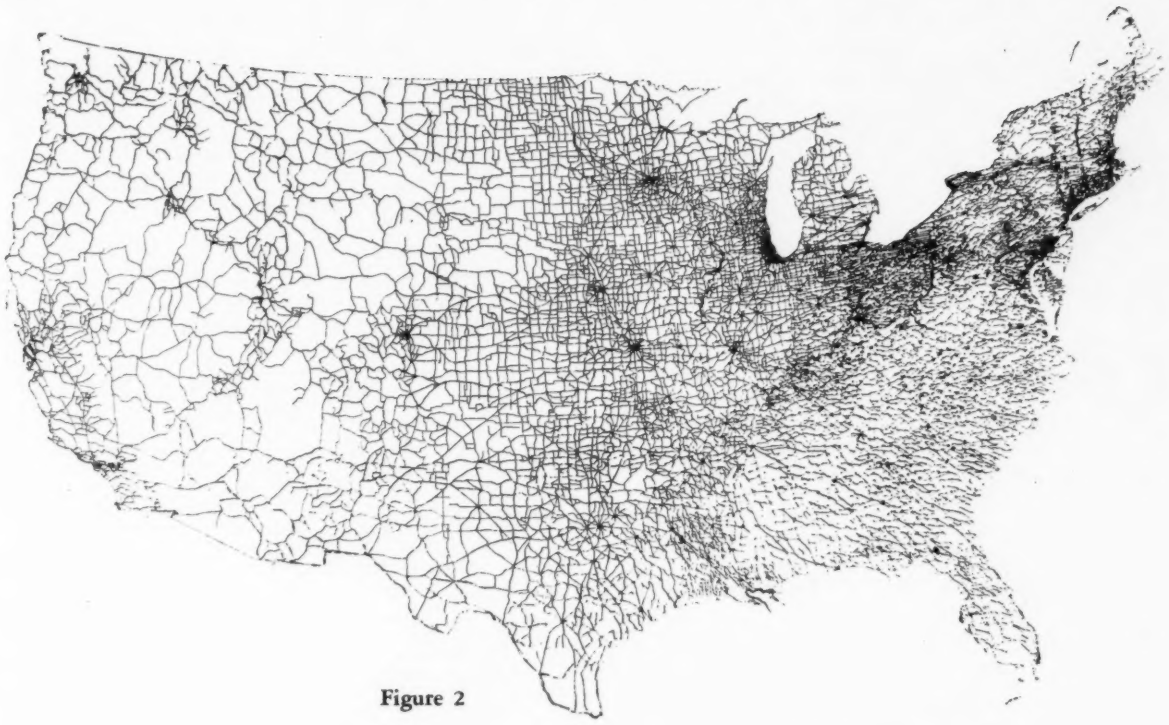


Figure 2

this case a tractor unit takes care of two or even three trailers—one being loaded while another is unloaded and the third is in transit. For military purposes it is possible to use trailers for straight haulage as well as for repair shops, mobile depots, mobile headquarters, and for a tremendous variety of other purposes.

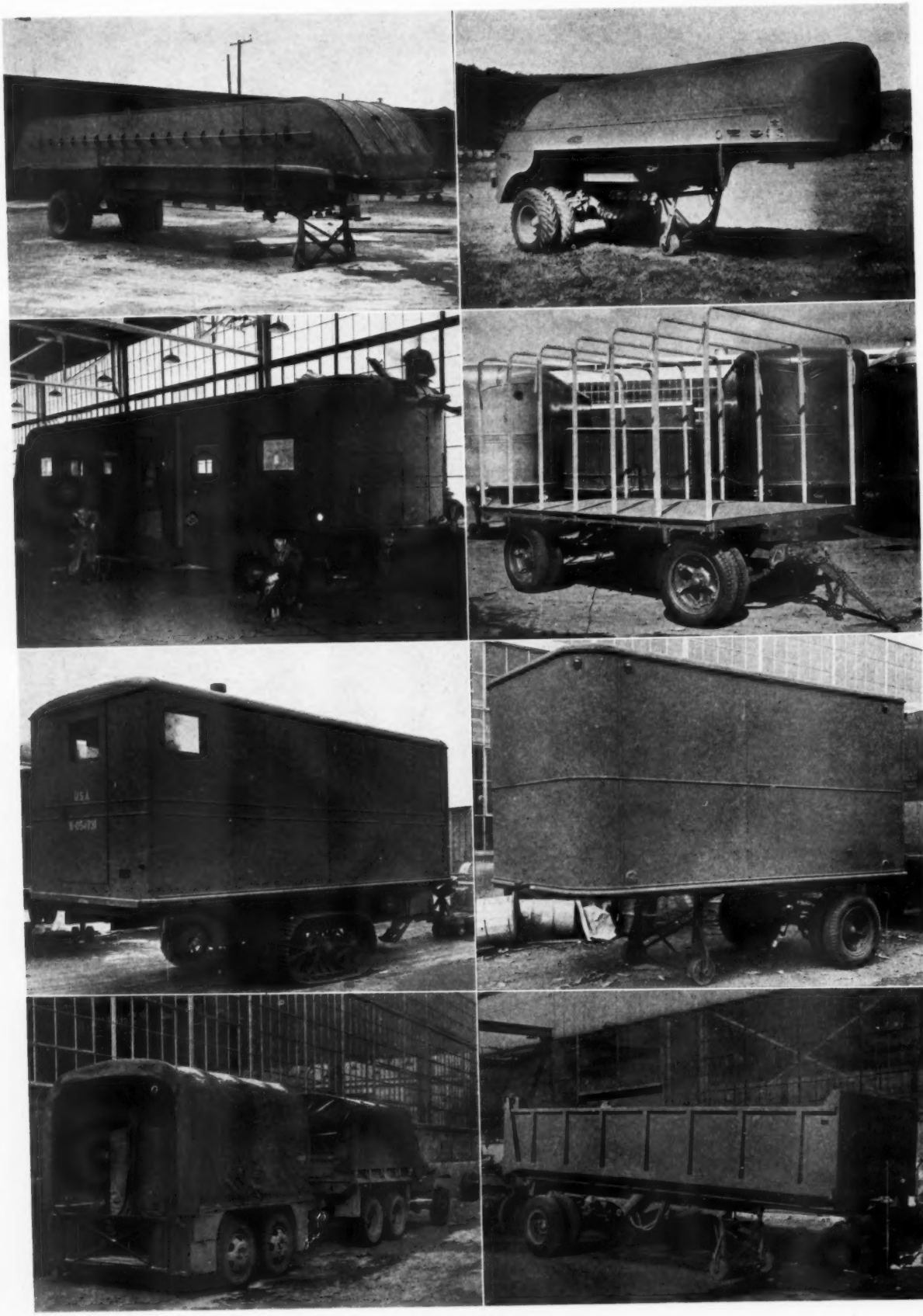
The extreme flexibility, adaptability and versatility of the trailer in the commercial field where it is used for every purpose from alley deliveries up to the transportation of heavy machinery weighing forty tons or more, is rapidly being duplicated for military purposes. In the cavalry, trailers are already being used for a multitude of purposes. The transportation of horses and complete cavalry equipment to suitable points on the front—from which it can be deployed as a mounted force—is naturally an obvious use.

With light tanks and many other pieces of heavy equipment being a part of the cavalry's mechanized set-up today, the trailer takes on a tremendously added importance in this branch of the service just as it has in the others as illustrated by the equipment shown on these pages. It does not take any great amount of vision to picture the many uses to which a detachable, mobile unit capable of transporting all types of loads can be applied. In military, as in commercial use, it is simply a matter of studying the problem and adapting and designing or selecting the type of trailer equipment suited for the job. *There is a further thought, however, in that many facilities and military services not heretofore possible are made entirely practical by the trailer development.*

Trailer Maintenance

From the standpoint of practical field work the question of maintenance is always important. The most successful maintenance plan which results in the minimum tie-up of the vehicle depends on an orderly routine of inspection, repair and replacement. The problem is entirely similar to that of commercial work where the trailer must be kept rolling day and night and the time for the vehicle in the shop must be held down to the limit. Such a routine has been worked out by a typical commercial shop and it is entirely applicable to military work. In the case of the commercial shop, if the trailer arrives at 8 AM it will be returned to the operator not later than 6:30 PM the same day with the following work completed if required:

1. Refloored (see following paragraph)
2. Rebushed
3. Brakes adjusted or relined (if necessary)
4. Hubs washed thoroughly in "Varsol"
5. Bearings washed in "Varsol" and repacked *under pressure*
6. All lights checked and replaced when necessary
7. Springs and radius rods rebushed if necessary
8. Springs checked for broken leaves, arch, etc.
9. Alignment checked and corrected if necessary
10. Damaged plywood or slats replaced
11. "Touch-up" painting where necessary
12. Trailer completely lubricated
13. Vacuum system checked, moisture trap cleaned and drained



Several types of Army trailers.

14. Fifth Wheel checked for wear and necessary replacements made
15. King pin "Miked" for wear

In this particular shop reflooring is accomplished in a different method than heretofore. Instead of replacing the main floor, damaged boards are replaced. A heavy coating of hot tar is applied to the old floor, covered with No. 16 wet tar paper and over this is placed an oak floor similar to that used in houses (nailing this to the old floor with galvanized nails to prevent rust). The tar and tar paper combination absolutely seals the two floors together.

The above list furnishes a method of completely checking the trailer. Only the work actually required is done and the time required for the job is correspondingly less. Major commercial fleet operators have followed a similar routine in many instances with a great deal of success resulting in greatly reduced time in the shop and practically eliminating delays on the road.

Naturally on vehicles of this type the matter of brake maintenance is of particular importance, and, in cooperation with brake specialists, routines have been worked out which have resulted in increasing brake lining life from 8,000 to 30,000 miles while brake drum breakage has been just about eliminated.

Delays due to such practical considerations as grease on brake linings, necessity for removing wheels and frequency of adjustment have been cut down due to proper brake analysis and maintenance to an amazing degree. At the same time, brake performance on the highway has been improved from 50 to 75%. All of this contributes materially to efficiency of transportation. The savings in time and money are high, beyond the possibility of estimation because they are so far reaching. One noticeable effect, for example, of properly maintaining the brake equipment is that tire blow-outs caused by heat have been practically eliminated.

Before the Society of Automotive Engineers at the annual meeting in Detroit, Michigan, January 6-10, 1941 this subject was exhaustively covered in a paper entitled "Brake Equalization Between Truck-Tractors and Trailers" by John W. Votypka, Chief Engineer, Fruehauf Trailer Company and E. Vance Howe, Bendix Westinghouse Air Brake Company. In this paper, developed as the result of a long series of field tests in which the brake drum temperatures were measured on truck-trailer combinations in the Allegheny mountains, it was found that where proper maintenance programs had not been followed a tremendous difference existed between brake drum temperatures on different wheels of tractor and trailer, indicating that the loads were being concentrated on one or more wheels resulting in uneven wear as well as uneven braking.

It is not intended here to go into the technicalities of brake balancing as manufacturers' service instructions cover this situation fully. It is intended, however, to call attention to this matter of brake maintenance as being essential to the best possible performance of the unit and as a necessary part of the education of the operating and maintenance personnel.

The rapidly growing use of truck-trailer equipment will do much to speed up mechanized warfare. Trailer equipment is capable of bringing slower-moving units up to the front lines where they can be valuably employed. It is useful in eliminating the necessity of unloading the vehicle because the trailer and its cargo can be dropped by the tractor unit and picked up again when required. The valuable time saved in the loading and unloading operations can not be even approximately estimated. At times it may mean the difference between saving and losing all-important matériel.

Above all the trailer is a most important means of getting the striking power of the cavalry unit up where it may be used and used quickly; and no one knows the value of timeliness better than a cavalryman!

Cavalry Portée equipment.

The German Armored Force

By Captain Carl T. Schmidt

EDITOR'S NOTE: Several of our members recently requested articles on "The German Armored Force." In our opinion, the best article on this subject immediately available to us is the one published in the December, 1941, issue of *The Infantry Journal*. Inasmuch as there is only about a 5% overlap in our respective subscription lists the Editor of *The Infantry Journal* courteously has authorized our republication of this valuable article.

* * * *

"A WARTIME expedient, successful against the Germans in 1918 when their infantry was greatly reduced in numbers and surprised by this new device, the tank cannot yield good results against an infantry forewarned and adequately armed." So wrote an observer of the civil war in Spain, three years ago. About the same time another writer declared: "The tank, as well as the artillery, is only an auxiliary arm, intended to assist the infantry. . . ."

These statements, made so shortly before the cables were telling the story of the panzer onslaught against the Low Countries and France, the story that the great French Army, without equipment to deal with such an attack, was being slashed to ribbons by a new and terrible instrument, greatly minimized the power of this instrument. And since the Battles of Flanders and France, the pendulum of mechanized emphasis has swung violently, and perhaps too far. For now there is too great an insistence that tanks, plus planes, are in themselves the key to victory.

The observers of the war in Spain were perhaps sound enough in their judgment of a specific matter—that is, of the combat value of lightly-armored tanks, employed in more or less piecemeal fashion, and with little in the way of coördinated support from other arms. But as broad generalizations, their findings were far from accurate. To make sweeping conclusions affirming universal truth on the basis of slender evidence is an all too common tendency, not least in military writing. It has now come to be just as easy to overgeneralize the decisive importance of the tank. It is as absurd to argue that the tank arm—or, for that matter, the air arm—is the "decisive weapon" as it is to insist on the eternal supremacy of the foot soldier or the cavalryman. War is a supremely complex, collective effort. Many kinds of men, and even more varied techniques, are required for victory on the battlefield. However, one thought seems patent enough: The machine technology is as surely molding the methods of warfare as it is transforming all other institutions of our times. And the army that adapts itself most completely to machines—machines which can move fire-power at maximum speed and with a maximum of protection—that army clearly has a margin of superiority over opponents who do not make the utmost practicable use of modern means of war.

The tank has amply demonstrated its powers on the plains of Poland, in the rolling countryside of Flanders, France and Russia, on the deserts of North Africa, and even through the rugged mountains of the Balkans. Yet it is not the tank alone. It is the tank working and fighting against the enemy with equally mobile infantry, artillery, engineers, signalers, aviation, and essential services—*a force of all arms,* that has hopelessly outmoded the slow-moving combat units of 1918 pattern.

If the Germans were not the first to recognize the tactical and strategic possibilities of the tank in large, independent units, they were at least the first to exploit these possibilities to a major degree.

Tanks were first developed as a weapon with which to dispute the supremacy of the machine gun. Thus the infantry, immobilized by hostile automatic guns, was to have at least a degree of maneuverability restored to it. The tanks of the World War moved ponderously across No Man's Land, destroying enemy machine guns by their crushing weight as well as by their fire, and acting as a protective shield for the advancing infantrymen. This World War concept of the tank dominated the military minds of the victorious powers in the postwar years. Especially was this true in the French Army. It was held that the tank existed only to serve the infantry. Both arms were to work closely together. The tank should move no farther than the immediate objective of the infantry; it was to withdraw once it had aided the foot soldiers to reach their objective. To be sure, this viewpoint did not go unchallenged. There were some who pointed to the strategic possibilities of a speedy, far-moving armored force. Their argument did not prevail.

When the Germans began to rearm, they rejected the theory that tanks must be tied closely to the foot infantry. They decided that the speed of the modern

PzKw I (light) Seven-ton model as seen in Poland. Apparently no longer being manufactured.

tank could best be exploited, particularly after a successful breakthrough or envelopment, by using it in large numbers and by supporting it with highly mobile infantry, artillery, engineers, and aviation. Once the main hostile defenses had been overcome, such a force would be capable of striking rapidly through the entire depth of a hostile position. The supporting elements would be mobile enough to consolidate the gains made by the tanks, as well as to assist the penetration. A further advantage was seen in the organization of a mixed armored force under single command. General Guderian—the best-known tank soldier of Nazi Germany—put it as follows: ". . . There are important strategic and tactical objections to the organization of separate low-speed tank units for the infantry. The tank units that are designed for strategic purposes may also be used tactically either as entire units or divided. On the other hand, it would be impracticable to combine the division tank battalions for strategic employment. Aside from the fact that their equipment is not suitable for missions of this kind, the combined force would lack the requisite headquarters and could not produce them at will. The greater the speed of an arm on the march and in combat the more important that it and its commanders be trained in units that are organized in peace the same as they would be in war. In this respect, we have a valuable lesson in the misfortunes suffered by the German cavalry in 1914 as a result of untrained staffs, poor communications, inadequate equipment, and faulty march technique on the part of large units; all of this can be attributed to its pre-war organization."[1] The Germans felt that the experiences with tanks after 1918—as in the Spanish Civil War—confirmed their decision to establish self-contained armored divisions.

Organization of the Armored Division

The organization of the German armored division is quite flexible. Changes in the details of its structure and equipment appear to have been frequent. Units are recast to suit the expected requirements of specific tasks; the availability of matériel and the formation of new divisions also make for variations. Nevertheless, it is possible to detect a general pattern of organization:

Division Headquarters

Armored Brigade

1 or 2 tank regiments plus staff, reconnaissance, communications, and maintenance elements (200 to 450 tanks).

Motorized Infantry Brigade

1 or 2 motorized infantry regiments, plus staff, assault artillery, reconnaissance and communications elements.

[1]General Heinz Guderian, "Armored Forces," *The Coast Artillery Journal*, November-December, 1937.

Artillery Regiment

Several battalions of motorized artillery – 75-mm., 105-mm., 120-mm., 150-mm., possibly on self-propelled armored mounts.

Motorized Antitank Regiment or Battalion

47-mm., 50-mm., 75-mm., antitank guns, possibly on self-propelled armored mounts.

Motorized Reconnaissance Regiment or Battalion

Light tanks, armored cars, motorcycles.

Motorized Antiaircraft-Antitank Regiment or Battalion

15-mm., 20-mm., 37-mm., 88-mm., AA-AT guns, possibly on self-propelled, armored mounts.

Engineer Battalion

Bridge and ferry equipment.

Communications Battalion

Telephone and radio equipment.

Supply, Maintenance, and Medical Services

Motorized equipment.

Attached Aviation

Reconnaissance and bombardment units, AA units.

The division has been designed to make the most of the speed, shock action, and protected fire power that modern technology makes possible. Its core is the tank brigade. All other elements—motorized infantry, artillery, reconnaissance, communications, engineer, antiaircraft, and antitank elements, attached aviation—are intended to assist the tanks' maneuver, to protect them, to hold ground that they have won, to exploit their successes. The tendency during the past year appears to have been to strengthen the antiaircraft and antitank defenses of the division, to provide more close-support artillery on armored mounts, to shift from light to medium and heavy tanks. Obviously, this is a hard-hitting, highly mobile force, capable of considerable independent action.

The tank brigade may consist of two identical regiments, each equipped with light and medium tanks, or of one medium and one heavy tank regiment. However, in certain divisions the brigade has only one regiment. The tank regiment consists of two tank battalions (each containing three light or medium and one medium or heavy tank company), and one antitank battalion. It also includes engineer, communications, and maintenance elements, and probably has antiaircraft weapons. There are about 200 tanks in the regiment. Apparently each tank is intended to have two complete crews—one in reserve transported in personnel carriers—but it is not certain that this standard has been maintained in practice.

PzKw II (light) as used during the attack on the Netherlands.

PzKw III (medium) has appeared in the Libyan desert as part of Rommell's *Afrikakorps.*

A "normal" division, consisting of the maximum number of units shown above, probably has a strength of 12,000 officers and men, and employs 3,000-3,500 vehicles—tanks, armored cars, automobiles, trucks, and motorcycles. A small division, with but one tank regiment and a corresponding reduction in the support elements, has been employed in North Africa. It is possible that difficulties of supply and maintenance in a region of poor communications have been responsible for this smaller-scale organization. A "heavy" armored division is also reported to be in existence. It is equipped with heavy tanks and is especially strong in artillery and antitank weapons. Light tanks are eliminated except for reconnaissance and liaison purposes.

It is said that the armored division may be employed as a unit, or in certain situations, as two separate forces. That is, the tank brigade may be used wherever supporting tanks are needed, and the support elements as a small motorized infantry division. However, this would not seem to be an efficient way of undertaking missions suitable to other organizations.

An armored corps consists of several armored divisions and motorized infantry divisions, plus aviation. Panzer armies, probably composed of two or more corps, have made their appearance in the Russian compaign.

German Tanks

What are German tanks like? This, too, is a question that at present can be answered none too definitely. To be sure, certain types have been captured and closely studied. But others are known only vaguely.

In general, the quality of the vehicles appears to be good. But they are probably no better than tanks of other powers. It is said that their armorplate is not of the best (it is probably homogeneous), that joints crack rather easily, that the tracks do not stand up too well. On the other hand, German tanks have been carefully designed to make them tactically effective. Despite the relative inferiority of the steel, their armor is hard to penetrate, for the plates are set at such angles that many projectiles glance off. Moreover, there has apparently been a tendency to rely primarily on the tank's speed rather than on its armor for protection from antitank fire. Observation and communications equipment is believed to be excellent. Some models have power-operated turrets, periscopes, and smoke-screen equipment. In the newer production self-sealing fuel tanks have been installed, as well as fireproof walls between the crew and engine compartments. Collective antigas protection is a feature of certain types. All in all, the German tanks have proved themselves to be efficient fighting vehicles.

But the great strength of the German tank arm lies in its numbers. The emphasis has been on producing large quantities of vehicles just good enough to do their job rather than on making smaller numbers of technically more perfect tanks. For example, homogeneous armorplate is cheaper and easier to make in quantity than the more resistant face-hardened plate. This has entailed a good deal of improvisation, too. For example, when it was discovered that certain tanks were very vulnerable to antitank fire, their surfaces were reinforced simply by riveting extra plates over the spots subject to heavy fire. Thus it was not necessary to withdraw these vehicles wholly from service. In the meantime, no doubt, improved models were being designed and manufactured.

At least five types of German-built tanks are known

Another version of PzKw III, doing business as a self-propelled assault gun, somewhere in Belgium in 1940.

to have been in service since the outbreak of the war. Two other models have been reported. In addition, tanks of French and Czech, and possibly also Polish, manufacture are used. Not only did the Germans capture large numbers of vehicles, but—perhaps more important—they are also availing themselves of French and Czech production facilities.

Essential characteristics of these tanks are shown below. The Germans appear to classify their tanks, not by weight, but in terms of their weapons. Thus a "light" tank is one equipped only with machine guns.

(1) *PzKw I*. Light tank
Weight: 5.7 tons
Crew: Two
Maximum armor: 18-mm. (0.7 inch)
Armament: 2 light machine guns
Maximum road speed: 32 m.p.h.
Radius of action: 95 miles

(2) *PzKw II*. Light tank
Weight: 9 tons
Crew: Three
Maximum armor: 20-mm. (0.8 inch)[2]
Armament: 1 heavy machine gun
1 light machine gun
Maximum road speed: 24 m.p.h.
Radius of action: 125 miles

(3) *PzKw III*. Medium tank
Weight: 18 tons
Crew: Five
Maximum armor: 30-40-mm. (1.2-1.6 inches)[3]
Armament: 1 37-mm. or 50-mm. gun
2 light machine guns
Maximum road speed: 28 m.p.h.
Radius of action: ?

(4) *PzKw IV*. Heavy medium tank
Weight: 22 tons
Crew: Five
Maximum armor: 40-60-mm.[4] (1.6-2.4 inches)
Armament: 1 75-mm. gun.
2 light machine guns
Maximum road speed: 23 m. p. h.
Radius of action: ?

(5) *PzKw V*. Heavy tank
Weight: 32 tons
Crew: Seven or eight
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun, 4 machine guns; or
1 75-mm. gun, 1 37-mm. gun, 3 machine guns
Maximum road speed: 31 m.p.h.
Radius of action: 12 hours

[2]Additional 20-mm. plates may be welded on vulnerable surfaces.
[3]Additional 20-30-mm. plates may be welded on vulnerable surfaces.
[4]Including additional 20-30-mm. plates.

(6) *PzKw VI.* Heavy tank
Weight: 35 tons (?)
Crew: ?
Maximum armor: 75-mm. (3 inches)
Armament: 1 75-mm. gun or 1 105-mm. gun
2 20-mm. machine guns
4 light machine guns
Maximum road speed: 25 m.p.h.
Radius of action: 16 hours

(7) *PzKw VII.* Super-heavy tank
Weight: 90 tons (?)
Crew: 18 (?)
Maximum armor: 90-mm. (3.6 inches)
Armament: 1 105-mm. gun
2 47-mm. guns
4 machine guns
Maximum road speed: 18 m.p.h.
Radius of action: 16 hours

The PzKw 1 and II (PzKw = *Panzerkampfwagen* = tank), too lightly armored for modern antitank weapons, appear now to be limited to close reconnaissance, security, and liaison missions. In fact, PzKw I seems no longer to be in production. Many of these light tanks, also some mediums, have been converted into antitank and assault artillery weapon-carriers. For major combat purposes, chief reliance is now placed on the medium and heavy tanks, that is on types III, IV, and V. These are very effective vehicles. It is doubtful that the heaviest types (VI and VII) have been issued to units in any quantity. In fact, it is not certain that more than a few of the PzKw VII have been produced.

Experiments are said to have been made in transporting light tanks by airplane. That this is at least feasible was demonstrated by the Russians in 1936. But there are technical difficulties involved, and it is not clear that the advantages would be great unless somewhat heavier and better-armed tanks could be transported in sizable numbers. No real evidence had appeared up to November 15 of this year, that plane-transported tanks have been employed in combat. It is also believed that the Germans have several types of amphibian tanks, vehicles useful for reconnaissance and for establishing bridgeheads. Here again, there is no indication that these tanks have been used in great numbers. The Czech and French tanks most likely to be in use by the Germans have the following characteristics:

(1) *TNHP.* Light medium tank. Ex-Czech
Weight: 12.5 tons (?)
Crew: Five
Maximum armor: 50-mm. (2 inches)
Armament: 1 27-mm. gun
2 light machine guns
Maximum road speed: 26 m.p.h.
Radius of action: 125 miles

(2) *CKD V8 H.* Medium. Ex-Czech
Weight: 16.5 tons
Crew: Three or four
Maximum armor: 25-30-mm. (1-1.2 inches)
Armament: 1 47-mm. gun
2 light machine guns
Maximum speed: 27 m.p.h.
Radius of action: 96 miles

PzKw IV (heavy medium) as seen during the Battle of France.

PzKw V-VI (heavy) being landed at Oslo, Norway, during the Norwegian campaign.

(3) *Hotchkiss H* 39. Light-medium tank. Ex-French
Weight: 12 tons
Crew: Two or three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 26 m.p.h.
Radius of action: 130 miles

(4) *Renault 1937-38*. Light-medium tank. Ex-French
Weight: 12.5 tons
Crew: Two or three
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 15 m.p.h.
Radius of action: ?

(5) *Somua S35*. Medium tank. Ex-French
Weight: 18 tons
Crew: Three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 47-mm. gun
1 light machine gun
Maximum road speed: 29 m.p.h.
Radius of action: 140 miles

(6) *Char B*. Heavy tank. Ex-French
Weight: 31 tons
Crew: Four
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun
1 47-mm. gun
2 light machine guns
Maximum road speed: 17 m.p.h.
Radius of action: 150 miles

It may be that other types of French and Czech tanks are employed by the German Army. Furthermore, French and Czech manufacturers have been producing for the Germans; the quantity of their output, however, is not known. A number of Polish tanks, mostly light weight, also fell into German hands. These vehicles, if used at all, have most likely been converted into gun mounts. It is reported that the French Char B, too, has been modified into an artillery carrier.

The Armored Division in Combat

In the German conception, armored units must exploit to the utmost the speed inherent in tanks. To this end, it is essential to win surprise, to drive forward relentlessly in mass, to give the enemy no time for counter measures. Stubborn centers of resistance are enveloped or by-passed, to be reduced by troops coming up from the rear. Once the armored attack is launched, it must not be slowed down by foot infantry. For that would sacrifice the tank's speed to a dubious security. The armored force is above all an arm of slashing offensive.

But the tank, too, has its limitations. It cannot long hold ground without support. Terrain obstacles—natural and artificial—must be removed or beaten down by supporting troops. It is therefore necessary that these troops be able to move as fast as the tanks. Furthermore, an initial penetration must be hammered at by all arms, maintaining continuous pressure until the enemy's resistance disintegrates and a complete breakthrough is made. It is then, when rear areas are open to maneuver,

that the strategic possibilities of the armored force can be realized fully.

Obviously, there can be no hard-and-fast application of these principles to specific situations. As always, the ground and the enemy's dispositions must determine the precise mode of attack. The following is a summary of the doctrine on tank warfare as it appears in German commentaries.

Terrain influences greatly the nature and direction of the tank attack. It is better that tank units advance over favorable ground than that their movements be coördinated with other arms over difficult terrain. At the least, obstacles will slow down the tanks and may rob the attack of surprise. Careful reconnaissance by every available means—including, perhaps, personal air reconnaissance by the tank commander—is therefore essential. Only rarely will the situation justify an attack immediately from the approach march. If obstacles are discovered, means must be found for going around them, or removing or destroying them. This is a task for the support elements. Thus, mines will be removed by the engineers; a river barrier is surmounted by establishment of a bridgehead by the infantry and engineers. Yet these preparations must be held to a necessary minimum. Obviously, too, concealment is important. Tank movements, even at this stage, should be swift. So far as practical, they take place at night. Under certain wind conditions, it may be necessary to blanket the noise of tanks by the sound of artillery fire or low-flying aircraft. Radios are generally not used until the attack begins.

In most cases, a tank attack is decisive only when it is a concentration of force. Against an organized opposition, certainly, the tank brigade will be employed in mass. A brigade of two regiments may have a front of 1-2½ miles, and a depth of 2-3 miles. The tanks are deployed in two or three waves, with intervals of 50-150 yards between vehicles. Once within enemy observation all movements prior to opening fire must be at top speed.

Ideally, the leading wave pushes through the main line of resistance to destroy the enemy antitank and artillery weapons. No effort is made to mop up. But hostile tanks may be encountered. If this is the case, every force must be concentrated on their destruction, for they are the most dangerous foe. Once the enemy's tanks and antitank guns are eliminated, the leading echelon attacks reserves, supply and communications depots, headquarters, and other installations. The objective is to isolate the hostile centers of resistance and make it impossible to send up ammunition and reinforcements. Subsequent tank echelons, which may be accompanied by mobile infantry, attack enemy defensive positions, especially the infantry heavy weapons,

PzKw IV (heavy medium) shown early this year. This tank is supposed to be an improved version.

The Hotchkiss 1939, ex-French (light medium), is now in German hands.

break passages through wire for the infantry, and go on to assist the leading wave in destroying forces in the rear. Tank units must press forward to their individual objectives rapidly. (Again, it is emphasized that the tank's best protection is its speed rather than its armor.) In some cases, however, important terrain features must be held until the infantry arrives.

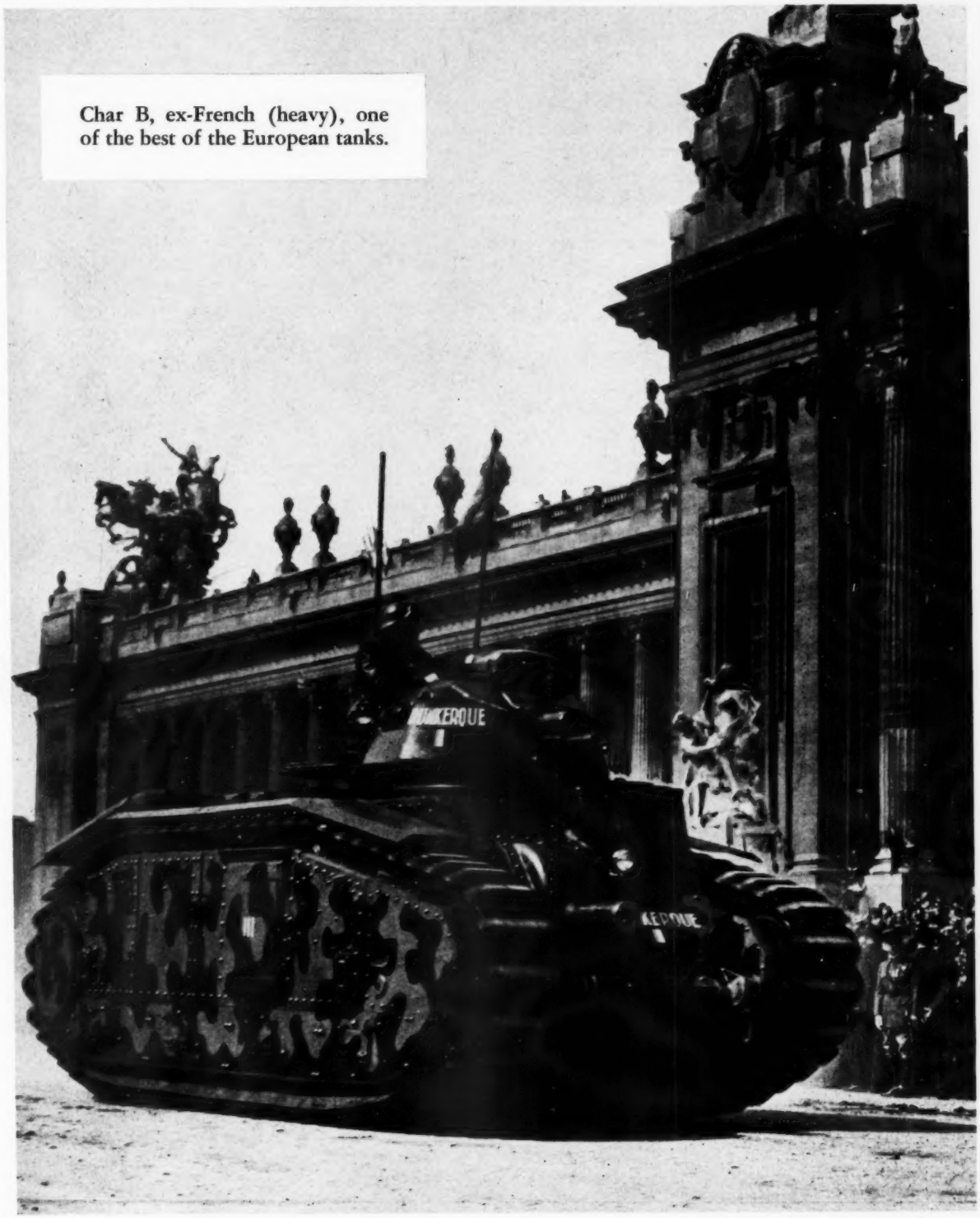
A main task of the motorized infantry is to give fire support to tank units, to mop up and hold ground overrun by the tanks, and to protect the vehicles when they reassemble. But the infantry must also be ready to break open a route for tanks by finding a soft spot in the hostile position, and by attacking hostile antitank weapons and other defenses that endanger the tanks. In fact, at times—as when the terrain is unfavorable or the situation is obscure—the infantry must attack before the tanks can advance. This has marked disadvantages: The full momentum of the attack may be lost; friendly infantry may be hard for the tanks to locate; coördination between the various arms may be difficult. On the other hand, it is possible that the enemy's scheme of defense will be clarified, that some at least of his antitank guns will be destroyed, and that ground favorable for the tank advance will be captured.

The armored force artillery, itself highly mobile, has as its prime mission the destruction or neutralization of hostile artillery and antitank weapons, observation posts, and tank obstacles. Woods, villages, and other areas unsuited for tank movement should be neutralized. At times, the tank attack may be preceded by a short, intense artillery preparation. During the tank advance artillery must pay especial attention to the flanks of the penetration, covering them with high explosive and smoke projectiles. Self-propelled artillery may actually accompany the tank echelon in order to engage enemy tanks. Antitank and antiaircraft units protect the tanks, particularly when they are most vulnerable to air and ground attack, that is, when they are in assembly areas. Mechanized antitank weapons may also give close support to the tank attack.

Engineers are of great importance in expediting tank movements. They bridge rivers, remove mines laid by friendly as well as hostile troops, and in other ways prepare routes of advance. (General Guderian has stated

that in Poland and France the engineers of his command built 208 bridges with a total length of 5,925 meters; 135 of these bridges had a carrying capacity of 16 tons or more.) During the attack, engineer units may have to keep up with the tanks in order to remove mines promptly, make crossings over trenches, blast barriers, and help stalled vehicles to move on. They may also be used with infantry to reduce prepared positions.

At least a local air superiority is a prerequisite to successful employment of armored formations. Short of



Char B, ex-French (heavy), one of the best of the European tanks.

this, it is unlikely that the essential surprise can be obtained. The supporting air force must be under command of the armored force leader. Air reconnaissance plays an important rôle before and during the attack. Supplemented by fast ground reconnaissance, it helps locate feasible routes for the tanks, enemy concentrations and movements, antitank and artillery emplacements. Bombardment aviation acts as flying artillery. It attacks hostile centers of resistance, antitank obstacles, reserves, and obstacles. Air-borne troops may be landed in the enemy's rear, to seize and hold vital points and then to organize areas of support for the tank breakthrough. Such attacks may also divert the enemy's attention from the armored onslaught.

When tanks break down or are knocked out by enemy weapons and mines, they must be recovered by the maintenance echelon. So far as possible these tanks must be repaired and put back into action promptly. The ultimate decision may well turn on the number of tanks that can be salvaged. Therefore maintenance crews are kept well forward during the attack. Similarly, relief crews are provided whenever feasible. Tank units are reorganized in covered positions. Ammunition, fuel, food, other supplies, and reinforcements are brought up—sometimes by air. Damaged equipment is repaired or replaced. Much of the efficient combat operation of the armored division depends upon its supply and maintenance units.

As soon as the hostile main defenses are pierced, the armored force may attempt a deep incursion into the rear areas. Advanced elements make no effort to occupy or consolidate their gains. They push on rapidly, with little regard for their flanks and communications, prepared to live off the country. The objective is to cut across roads and other routes, to destroy or disrupt reserves and supply installations, to spread general alarm, thus wrecking the enemy's rear organization. The armored force is a powerful means for rapidly exploiting a penetration. German doctrine therefore insists that a faltering enemy must be completely broken up and annihilated by unremitting pursuit.

This, then, is the German panzer division, its organization and the doctrine of its employment. It contains no mysteries. Obviously, hard work has gone into its construction and its successful leadership in battle calls for a high order of ability. These qualities are a monopoly of no army.

Strategy that Encompasses the Globe

We see in Germany today a nation which has been devoted to arms for a period of about seven years. It has been imbued with the offensive spirit completely antagonistic to the defensive attitudes of all of its victims. It has 300 divisions under arms—9 to 10 million men; England has only a fraction of that number; we have 33 and a cavalry brigade. Its air force alone is as large as our entire army. It is estimated that perhaps 100 of its divisions have yet to be engaged in Russia. The tanks and airplanes which Germany can muster on any one day exceed all the tanks and planes which were engaged in all of the last war on all sides. With these weapons Germany wages war on the basis of a strategy that encompasses the globe. People speak of the European war, but today Europe is but a base of operations. It is no accident that Germany in the course of one generation finds herself in two world wars. In spite of all protestations to the contrary, the world feels an urge on the part of Germany toward complete domination, and it is because of this that wars instituted by Germany have a disconcerting way of becoming world wars. Germany knows that the future world belongs to the country which controls the greatest number of strategically situated air and naval bases of the world, and such a concept allows her to draw no geographical lines on which to wage a last ditch fight. It is across the path of this force that we have thrown a challenge.

It is possible to debate the wisdom of that challenge, I suppose, even though it is but a continuation of the debates which took place before and after Munich. I happen to believe that it is a wise and necessary challenge, and that to continue to debate about it is something of a waste of time, but I am *more* concerned that we should realize what large forces are in the field, and that the field is not European but truly world wide and all absorbing. If we think and plan our affairs in any other terms, I fear we are in for a very rude shock and one which is just around the corner.—*The Honorable John J. McCloy*, September, 19, 1941.

Keep 'em Rolling*

EDITOR'S NOTE: The following is an article prepared by Lieutenant Colonel R. N. Atwell, QMC, Commandant, Quartermaster Motor Transport School, Fourth Corps Area, Fort McPherson, Atlanta, Georgia. It's timely publication may assist Commanding Officers in the initiation of corrective measures within their organization.

PUT THE BLAME WHERE IT BELONGS

"TODAY our Army has the largest and finest fleet of motor vehicles that has ever been manufactured and assigned to any military unit. In each vehicle there are a definite number of 'built-in' miles. Whether this be 50,000 or 100,000, it is the duty of every member of the Army to take steps to secure the last mile of this 'built-in' mileage with the least amount of unnecessary repairs. But right now, we find that at least 90% of the vehicles which reach Fourth Echelon Shops are there on account of vehicular abuse, due to careless or thoughtless operation. This can be corrected only through proper education of all concerned; this education, together with the plans for carrying it out effectively, must be promulgated from the top down.

"No commercial fleet operator is ever called upon to have his vehicle perform under the severe conditions of operation that confront the operators of Army fleets of vehicles. Therefore, it behooves us to exert even more care than is usually exercised by commercial fleet operators. We have a more difficult problem at the very start. The majority of the personnel that we receive has had no experience as truck drivers. We put them on vehicles more complicated to operate than commercial vehicles, yet expect them to prove satisfactory. This practice is being carried out in our entire Army. Either the driver is given no training, or the training is so superficial that it is of little value. Hence, we should not be surprised at the thousands of accidents of Army vehicles being dragged into Fourth Echelon Shops. The blame should be placed where it belongs. It begins with the driver and the officer in charge of operation of small fleets of vehicles, as are found in the troop, company, or battery.

"We might as well face this problem now, for if no effort is made to correct existing conditions with the least practicable delay, we will find thousands of vehicles on the dead line a year from now. This is very likely to run to fifty per cent of our total number of vehicles. We must teach our drivers and fleet supervisors to conserve the 'built-in' mileage by careful operation. If we do not, the 'built-in' mileage will be exhausted, long before we should reasonably expect it, through neglect and careless operation.

"By care in operation, we must include proper driving instruction, close supervision, and immediate corrective measures. A standard driver's test should be instituted for the entire Army. No man should be allowed to operate vehicles without supervision of an experienced non-com or exceptionally well qualified private, until he has qualified and passed the standardized test. The instruction should include not only the usual tests for driving, but should include cross-country operation and tests as to the duties of the driver, before, during, and after operation of the vehicle.

"We have little, if any, trouble with the operation and maintenance of machine guns and other automatic weapons. The reason lies in the fact that we have a systematic plan for the care of these weapons. Let us, therefore, put into effect a definite plan, simplified in manner, which will include the duties of the driver.

"Heretofore, we have called this 'First Echelon Maintenance,' but we can make it sound less complicated by simply calling it 'Driver's Duties.' These duties can be listed as follows:

Before Operation:
Check engine, oil, water, gas
Check tire pressure
Check lubrication against mileage since last lubricated
Check oil pressure
Check charging rate of generator
Check for overloading of cargo
Have correction made by 2nd Echelon Shop before taking vehicle out.

During Operation:
Observe oil pressure
Observe generator charging rate
Observe water temperature
Observe engine RPM or tachometer of vehicles so equipped
Note brake action
Note engine performance
Listen for unusual noise in all units.

At Halts:
Check engine oil for proper level
Check for oil leaks front, rear axles, transmission and transfer case
Check for low tire pressure
Check for loose wheel lugs
Check for loose parts
Check for shifting of loads

After Operation:
Refuel and refill radiator

*This Motor Transport Letter emanated from Headquarters Fourth Corps Area, Office of the Quartermaster, Atlanta, Georgia.

Replenish engine oil to proper level
Check water level in battery
Wash vehicle, if necessary
Check steering gear for unusual looseness
Check for oil leaks
Check for loose parts
Lubricate where required
Have 2nd Echelon mechanics make corrections
Park vehicle.

"A gummed sticker should be provided to be placed on the cowl of every vehicle showing miles by speedometer reading when the vehicle was last serviced. A suggested plan for a sticker is shown below:

SERVICED

Check Made	*Speedometer*
Engine Oil	
Transmission	
Transfer Case	
Chassis	
Wheel Bearings	
Springs	
Air Cleaner	
Oil Filter	
Shock Absorbers	
Brakes	
Front Axles	
Rear Axles	
Battery	
Steering Gear	
w/s Wiper	
All lights	
Tires	

A sticker of this nature will not only provide valuable information of the driver, but will facilitate inspection by the officer, fleet operator, and the tactical commander.

"In almost every instance, except probably in pool operation, the suggested checking of the several points can be performed under supervision of the officer in charge of the fleet. In fact, it can and should be done 'by the numbers.' However, when vehicles are operated individually, greater care must be exercised in the selection of drivers, and only such men as have demonstrated ability and dependability should be allowed to drive on individual trips.

"All of this is simply preventive maintenance. The fleet operator must put this maintenance on the highest priority of duties in his organization. It is analogous to proper care of animals in horse cavalry, horse artillery, or wagon trains. No one thinks of personal comforts in these organizations until the animals are cared for. Such should be the case in all motor equipped organizations. No tents should be pitched, no camp made, or mess served until all the vehicles are cared for and 'bedded down.' If such a rule is followed, you will find that the majority of your fleet will be in operating condition all of the time. Wars, such as are being waged today, cannot be won when vehicles are in poor operating condition or are on the dead line.

"Accidents cause a large number of vehicles to be brought to Fourth Echelon Shops. Accidents not only cause the loss of life, loss of a vehicle, and many hours of shop maintenance, but involve hours of investigation and the preparation of administrative reports. There is no such thing as 'an accident-prone driver'; the answer is that the man in question has not learned to drive properly, is not capable of learning, or is simply careless and negligent. In nine cases out of ten, or even more, accidents are due to carelessness or recklessness, and surely recklessness is carelessness. Surveying officers are generally too prone to excuse the driver. If the driver knew he would have to pay the cost of repairs, he would certainly be more careful. In addition to more severe action by surveying officers and boards of investigation, the driver should be 'Grounded'—'One accident and Out' should be the rule.

"Unauthorized use of Army vehicles is doubtless causing an unusual amount of avoidable repairs. In a small town in a maneuver area not long ago at 9:30 PM, it was observed that the streets were filled with parked and running Army vehicles. These included passenger cars, command cars, and trucks. Stores and restaurants were filled with soldiers, but there was not an officer or a Military Police to be found. This condition gave the impression that the authorities were very lax in the control of Government transportation. Vehicles should be dispatched properly for each trip. Inspection for damage to the vehicle should be made by a capable inspector before and after each trip.

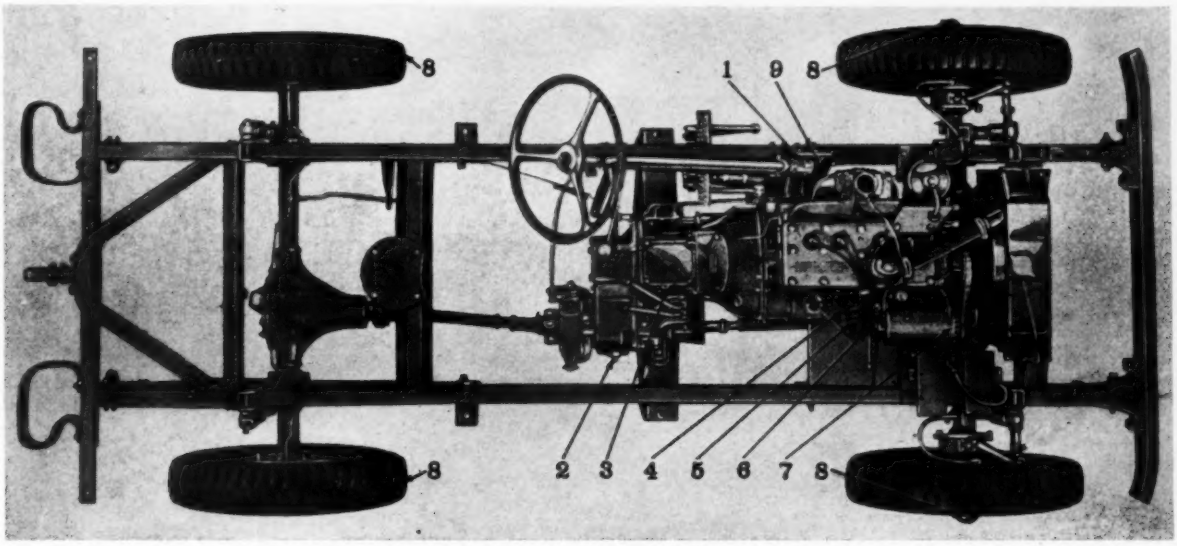
"Routine inspections, such as the 1,000 mile and 6,000 mile inspections, must be conscientiously performed. As a matter of fact, inspections by the Motor Officer and Motor Sergeant should be daily routine. The Motor Officer can readily check the condition of the vehicles as to performance during maneuvers by observation of the vehicle climbing a steep grade on the highway. The Motor Officer and Motor Sergeant should personally drive each vehicle once a month. Immediate corrective measures must be taken on report of failures received from drivers and other operating personnel.

"It is thus seen that the operating personnel can do much to reduce the number of vehicles which find their way into, and many times their end, in the Third and Fourth Echelon Shops. Certainly all the care necessary for long, efficient operation rests with the using services. The care required to properly put back the 'built-in' mileage rests with the Supply Services, namely, the Third and Fourth Echelon Shops."

"KEEP 'EM ROLLING"

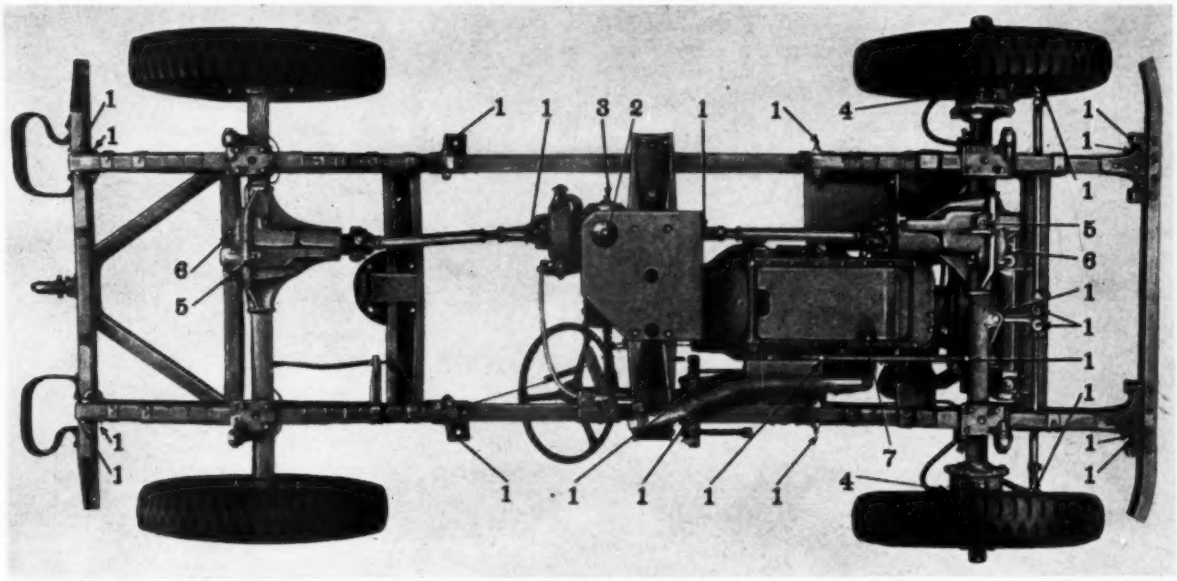
GENERAL CHASSIS LUBRICATION

—WILLYS MODEL ¼-TON 4 X 4 TRUCK★



CHASSIS LUBRICATION CHART, TOP VIEW—FIG. 1

1. Hydraulic Pressure Fittings—Lubricate every 1,000 miles with Compressor S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
2. Transfer Case Filler Plug—Drain and refill with 3 Pts. S.A.E. 90 Navy 1100, Army 110[u] Lubricant every 6,000 miles.
3. Transmission Filler Plug—Drain and refill with 2 Pts. S.A.E. 90 Navy 1100, Army 110[u] Lubricant every 6,000 miles.
   Transmission Drain Plug—Remove Skid Plate and Plug in Bottom Transmission Case.
4. Starter Slip Cover Oiler—3 to 5 drops of engine oil every 1,000 miles.
5. Distributor Oil Cup—3 to 5 drops of engine oil every 1,000 miles.
   Distributor Shaft Wick—Under Rotor 3 to 5 drops every 1,000 miles.
6. Engine Oil Filler Pipe—Drain and refill with 5 Qts. S.A.E. 30 Navy 1065 every 2,500 miles in Summer; S.A.E. 30 Navy 2110 in Winter.
7. Generator Oil Cups—3 to 5 drops Engine oil every 1,000 miles.
8. Wheel Bearings—Remove and clean and repack every 6,000 miles with S.A.E.—NLGI No. 1 Navy NLGI No. 1 Lubricant.
9. Steering Gear—Remove plug and check every 1,000 miles—use S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
   Every 1,000 miles put a few drops of engine oil on all joints and clevises throughout the chassis. Remove Propeller Shaft Universal Joint Bearings—Clean and repack every 12,000 miles with S.A.E. 140, Navy 1120, Army 110[u] Lubricant.
   Air Cleaner—Remove and clean and refill with 1 Pt. S.A.E. 50 Navy 1100 Lubricant every 2,000 miles.



CHASSIS LUBRICATION CHART, BOTTOM VIEW—FIG. 2

1. Hydraulic Pressure Fittings—Lubricate every 1,000 miles with compressor S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
2. Transfer Case Drain Plug—Drain every 6,000 miles.
3. Transfer Case Filler Plug—Fill with 3 pints S.A.E. 90 Navy 1100 Lubricant every 6,000 miles.
4. Front Axle Shaft Universal Joint Filler Plug—Check every 1,000 miles and add lubricant to level of filler plug. Remove, clean, inspect and refill with ½-lb. S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant every 12,000 miles.
5. Front and rear Axle Differential Drain Plug—Drain every 6,000 miles.
6. Front and rear Axle Differential Filler Plug—Check every 1,000 miles. Drain and refill with 2½ Pts. S.A.E. 09 EP-Navy Fed. Spec. VVL 761 Class 2 Lubricant every 6,000 miles.
7. Engine Oil Pan Drain Plug—Drain and refill every 2,500 miles.

★These charts were furnished by courtesy of Willys-Overland Motors, Inc., Toledo, Ohio.

Two Cavalry Patrols

With the Smell of Gasoline

By Lieutenant S. McC. Goodwin, 6th Cavalry

THE WARS OF LOUISIANA 1941 will long provide the subject of many bitter controversies, the source of examples both horrible and perfect, the basis of many mimeographs of explanation and correction. Without an attempt to intensify any of these issues but in an effort to present an interesting set of experiences as recorded by a junior officer of cavalry the following accounts are written. Both are taken from the soiled notebook of the officer in question, pages written in pencil, in ink, or for one whole day with a "Phano" china pencil. Many of the inked sheets had been washed by rain or the seepage of human perspiration through a khaki shirt pocket. Some had been written in a moving vehicle shown by the scarcely legible longhand. Arranged in chronological order by their author just as he jotted them down, these notes were certainly not intended for publication. But at our troop mess table one evening, just as the gasoline lantern was lit, we noted the author chuckling over his notebook as he scribbled in a few additional remarks. Our inquiry led to a chance to hear one of the stories those notes could unfold.

The author of that notebook had twice been designated to command a distant officer's patrol, mechanized. For those who doubt that romance is disappearing from the life of gasoline cavalrymen, we present these narratives as an argument. Severing all connections with his regiment, save the power of radio to breach the gap, this officer accompanied by four men on his first trip, two on his second, struck deep into enemy territory before infantry battle lines were formed. Roaming wide across lines of communication, these patrols searched for information vital to the commanders of higher echelons.

But here are the narrative accounts prepared from that patrol leader's notebook. A few preliminary words to orient the general situation have been added before each account.

Distant Officer's Patrol Number Two, Field Exercise IV Army Corps, August 19-20, 1941

The heights of WINNFIELD were the terrain objectives of the invading Red army. By superior air and naval strength that army had made a landing on the LOUISIANA shore of the GULF OF MEXICO. Bridgehead troops had immediately and rapidly begun a push to the north between the MISSISSIPPI and SABINE RIVERS. The advance was unopposed except by unfriendly natives until the line of the RED RIVER was reached. On August 18 the Blue army was known to be concentrating near SHREVEPORT and EL DORADO, ARKANSAS. On 18 August advance elements of Blue force were reported by Red air corps to be occuping the high ground west of WINNFIELD. The 6th Cavalry was moving in advance of the IV Army Corps, Red, composed of but two divisions at this time, the 4th (triangular, motorized) and the 43d.

"My patrol completely equipped in accordance with the several experimental loadings performed in the regiment, spent the night of August 18-19 restlessly sleeping by our two quarter-ton trucks parked not more than two hundred yards from the dim, brown glow of the S-3 tent. We were ready, alerted, as were two other patrols completely equipped parked beneath the scrub pines near by. My radio equipped car was a Willys recently received by the regiment; the SCR 245 mounted in the rear seat was also new. The second car was an American Bantam, one of the first experimental models that in turn had borne the brunt of many experiments performed on it. Without confidence in the ability of that car to withstand punishment, I selected a driver who was a graduate mechanic fresh from the Cavalry School. And in command of this car, as my place was in the radio car, I had chosen an experienced motorcycle scout corporal. My radio operator and the driver of the radio car, which I shall hereafter refer to as car number one, were men selected and assigned to that vehicle for their proven ability as specialists.

"At 6:30 that evening the general situation had been presented to the assembled officers of the regiment. At 3:00 AM I bumped my head on the tree root that was my pillow as I awoke with a start at the roar of a cold motorcycle engine. Assembling around the S-3 tent with many a yawn were all organization commanders.

"Soon we three patrol leaders were called into the source of that brown glow of the tent. Bent over a large map of the area the commanding officer issued his order to each patrol leader. This order to me, in part, was as follows:

a. (1) General situation—No change.

(2) Enemy force estimated one division reported holding high ground west of WINNFIELD along Highway 84.

(3) IV Army Corps, less one division, advancing north along axis Highway 167.

b. The regiment moves at 5:00 AM to reconnoiter high ground west of WINNFIELD to determine strength, identification, disposition of any enemy forces there.

c. Patrol number two, Lieut. Goodwin:

(1) Zone: West boundary, WILLIANA, ATLANTA, GUM SPRINGS, thence north to DUGDEMONA RIVER.

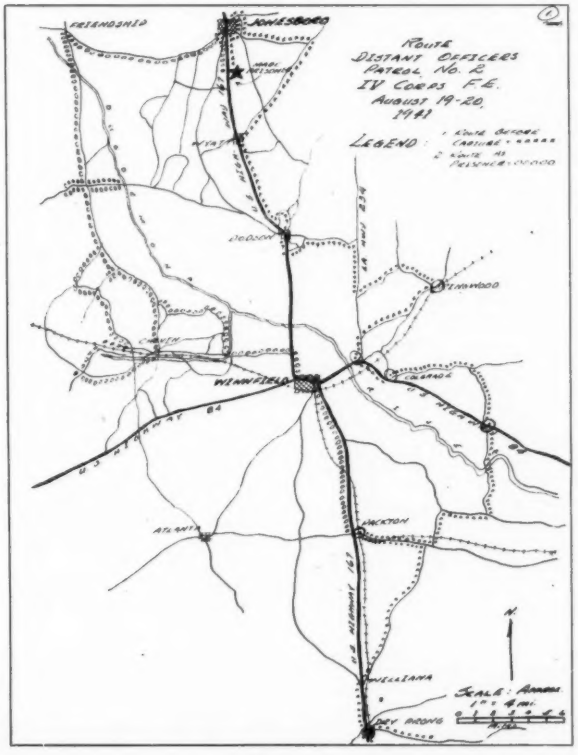
East Boundary, WILLIANA–State Highway 232–COLGRADE–RINGWOOD (all inclusive).

(2) Report location, disposition, and movement of enemy encountered.

(3) Moving in the right of zone attempt to swing around and determine location enemy left (east) flank believed near WINNFIELD. Patrol number 3 swinging farther to east will coöperate in an attempt to locate flank.

(4) As soon as practicable answer questions:
(a) Is PACKTON occupied? If so send message XX-Yes, if not XX-No.
(b) Is COLGRADE occupied?
(c) Is R.J. U.S. 84-LA 234 occupied?
(d) Is RINGWOOD occupied?

(5) Cross O P L R SUMMERFIELD–WILLIANA–BREEZY HILL at 4:40 AM.



Sketch 1

(6) Cross back into friendly territory and locate regimental C.P. not later than 21 August.

d. Your patrol is equipped for three days. Obtain breakfast at troop kitchens before departing.

e. Communications as instructed. Any questions? Move out.

"The patrol crept out of the C.P. now under strict blackout discipline at 4:00 AM. Under the cover of the railroad station at DRY PRONG a final inspection was made of all equipment and orders were issued to the patrol.

"A certain tense anticipation was obvious in each man's enthusiasm. At 4:25 we reached the O.P.L.R. and waited in the shadows of a church yard for the control time of 4:40 AM. The faintest streaks of the dawn were on the eastern horizon as our two engines began purring northward. Car number two preceded, cautiously moving from curve to curve, signalling my car to follow by a flash from a shielded light.

"We made for PACKTON moving as fast as possible. Two hundred yards short of the grade crossing there, the patrol halted. I sent the scout corporal forward to move through the ditch along the road to an observation point while I covered his advance, leaving both cars with a driver ready to move in either direction. A vertical flash from the scout corporal's light indicated no enemy in sight. I moved forward. PACKTON evidently consisted of nothing more than a railroad station and a switch operator's house. As I reached the railroad a column of motorcycles and scout cars passed on the main highway 500 yards to the west. This noise must have warned a sentry of the enemy outpost platoon sleeping on the station platform. Suddenly I could distinguish the figures of drowsy men frantically folding blankets; could hear the starting motors of cold engines. A weapons carrier pulled away from the one road leading into the station.

"Quickly I realized the danger of my situation–that weapons carrier would pass my halted Bantams. The faint light was still in my favor. I called to my scout to follow as I ran toward the cars. As we pulled away I saw a second weapons carrier moving. The first had not seen my cars and apparently fled to the west into the Blue column still passing on the highway. The second carrier turned in my direction. We had a 300-yard lead and a knowledge of the road, having just travelled it. My radio operator frantically sent the message 'XX–yes 5:30 A.' I remembered a country lane where I considered halting at our first crossing of the east-west logging railroad into PACKTON. We turned into that lane, traveled 'til a slight curve cut off observation from the highway, and backed both cars into the woods off the trail ready to jump behind our possible pursuer. Just then a roar and a cloud of dust passed on the road; two minutes later my scout now observing at the entrance to the lane reported a weapons carrier passed

moving west. Our mission accomplished here, the next objective was COLGRADE.

"The route selected for all movement was over unimproved roads throughout this mission. Crossing Highway 84 was ticklish business. A dismounted reconnaissance here disclosed that we had evidently been passed by a detachment from one of the advance reconnaissance troops indicated by a familiar, small, route-marking arrow. We continued, car number two still preceding. Light was now good; the sun was rising. Farmers milking their cows offered no information of military vehicles or men in the vicinity. Among the several churches of COLGRADE there were no signs of any activity. A short distance to the junction of Highway 84 and 234 we found only a filling station, as yet unopened.

"While moving toward RINGWOOD we received a message 'to push aggressively to the northwest to locate enemy's east flank.' As I was near RINGWOOD at that time, I elected to complete my initial mission. Just south of the village I passed a platoon of Troop 'F,' 6th Cavalry, whose reconnaissance had led them directly to RINGWOOD. There was no Blue activity observed or reported in the vicinity. Arrangements were made with the scout car platoon commander to relay my messages to the regiment should my patrol go beyond radio range of the C.P.

"I then plotted a route on the map which would lead to the northwest touching Highway 167 at points from DODSON to RUSTON, then turn southwest behind the DUGDEMONA RIVER. We moved rapidly, bounding from ridge to curve to crossroad. Car number two preceded my car by about 300 yards communicating by visual signals. Our speed averaged about 25 m.p.h. Radio contact was still excellent. The spirit of the patrol was now determined; free of that earlier tenseness.

"Cautiously we entered DODSON concealed the cars among piles of rubbish and inquired among the unfriendly inhabitants. But there was no trace of the enemy here. WYATT was similarly reconnoitered and similarly failed to yield any information. These negative reports tended to make the patrol less cautious as we neared JONESBORO, a town of about 3,000 inhabitants.

"Entering the village from the southeast I selected an open lumber yard as concealment for my cars and moved to position to cover by fire the dismounted reconnaissance of my scout corporal. He returned with negative information. In the meantime I was told by a young boy of high school age that there was still one Blue car and some men concealed in the center of JONESBORO. He would meet me in the center of town and show these Blues to me but he flatly refused to ride in the car with me. I became suspicious but nonetheless inquisitive. Moving cautiously around the town without seeing a sign of military activity, we reëntered, this time from the west. From a position in defilade behind the slight hill on which the parish courthouse was situated I could observe most of the main street. Ah! there in the deep shadow of a narrow alley was a Blue weapons carrier partially concealed by the curious civilians lingering around it. As I reached to get my field glasses the enemy weapons carrier moved forward. We had been seen.

"Quickly I indicated that the two cars were to separate and run for it. With the radio car I turned south on Highway 167. Madly the cars raced down the straight concrete strip as gradually the enemy closed the gap between us. Amidst an exchange of Tommy gun fire, I ordered my driver to jam on his brakes, pull over to the right shoulder, and as the heavy enemy car passed us to spin around in the road and run in the opposite direction. That move caught my pursuer by surprise. I gained about 500 yards, enough to try slipping off to a side road. Selecting a logical place for a lane we turned off to the east. But my choice was poor. Two hundred yards off the highway we ran into a barbed wire fence running through a heavy bog, banked by fallen timber. We were caught. I vaulted the fence but slid gracelessly in the thick mud as I landed on the other side. I picked myself up with the pistol of my pursuer over my shoulder. I was his prisoner. My radio operator had remained at his post and as our fate became obvious he sent this message: 'Patrol now being captured south JONESBORO' at the same time he safely concealed all valuable communication instructions in his possession. The driver attempted to return the fire of the enemy as they closed in upon his car.

"Our captors were evidently part of an isolated combat patrol assigned the task of ambushing any Red troops entering JONESBORO. They returned us under guard to that town. We then moved west to the nearest crossing of the DUGDEMONA RIVER. Here I was ordered to accompany the Blue patrol leader leaving my car and men under guard on the east bank of stream. I travelled north with my captor along the DUGDEMONA perfectly free to observe all installations on that line. I was taken directly to the enemy, infantry division command post at CALVIN, examined by the division G-2, and sent to the forward echelon prisoner enclosure. Several hours later I was evacuated to the rear echelon. At all times I was very courteously treated but viewed as a rare specimen of some strange animal by all who observed my marked uniform.

"At 6:30 PM the evening of August 19 I began a trip back through the Blue infantry lines to be exchanged as a prisoner of war in WINNFIELD. Again I was permitted to observe all installations passed. At 9:30 PM I was unconditionally released and reported immediately to my regimental commander.

"In the meantime the driver and operator in car number one (radio-equipped) took advantage of a fortunate situation. Their guards being weary infantry soldiers fell asleep and thus permitted my men to seize

their arms, obtain the keys to the car and flee. They later joined the advance reconnaissance platoon which I had contacted in RINGWOOD and had the satisfaction of seeing this scout car platoon pursue and capture the remnants of the Blue patrol that had made us their prisoners. Car number two avoided capture until about 2:00 PM when a mechanical failure of the fuel pump let them fall into enemy hands north of JONESBORO. The driver and car were held prisoners for thirty-six hours. My scout corporal was committed to the enemy field hospital as a prisoner, ill with influenza."

DISTANT OFFICER'S PATROL NUMBER ONE,
III ARMY FIELD EXERCISE
SEPTEMBER 5-6, 1941

The initial success of the Red IV Corps was short lived. As a bridgehead force the Corps had stepped beyond supporting a distance of the III Army and early in September was attempting to force a breakthrough to the south in an effort to escape virtual encirclement. On September 4, the Corps succeeded in crossing to the south bank of the RED RIVER near ALEXANDRIA, LOUISIANA.

"The 6th Cavalry was bivouacked on the evening of September 4, 1941, at INGLEWOOD. At 6:00 PM the commanding officer explained the situation to his assembled officers. Three officers' patrols each equipped with a single quarter-ton truck (Willys, radio equipped) were alerted at this time. The orders to the regiment arrived from Corps at about 6:45 PM. An hour later I was called to the C.P. and issued a verbal fragmentary order in part as follows:

a. Familiarize yourself with the general situation.

b. (1) Move behind this G Troop section, down Highway 26 to BAYOU COCODRIE. If that outpost section is in contact, request instructions. Be prepared to move both east and west along the bayou.

(2) Determine the "what and where" of any enemy contacted. Be especially alert for any part of the armored force. You are concerned with large groups.

(3) Once south of BAYOU COCODRIE, make ST. LANDRY as quickly as possible. Watch to southeast. Move to VILLE PLATTE and there request further instructions. Check Highway 71 to MORROW. Do not move on main highways.

(4) Contact must be maintained once made. Use radio relay through advance reconnaissance units if necessary. Telephones are available. Watch for air contact.

c. Any questions? Move out.

"Unimpeded by a second car that had proven of no particular value on my first patrol other than a convenient method of carrying supplies, I departed from the command post at 8:15 PM; with a heavily loaded car, the same driver as on my first mission, a new radio operator.

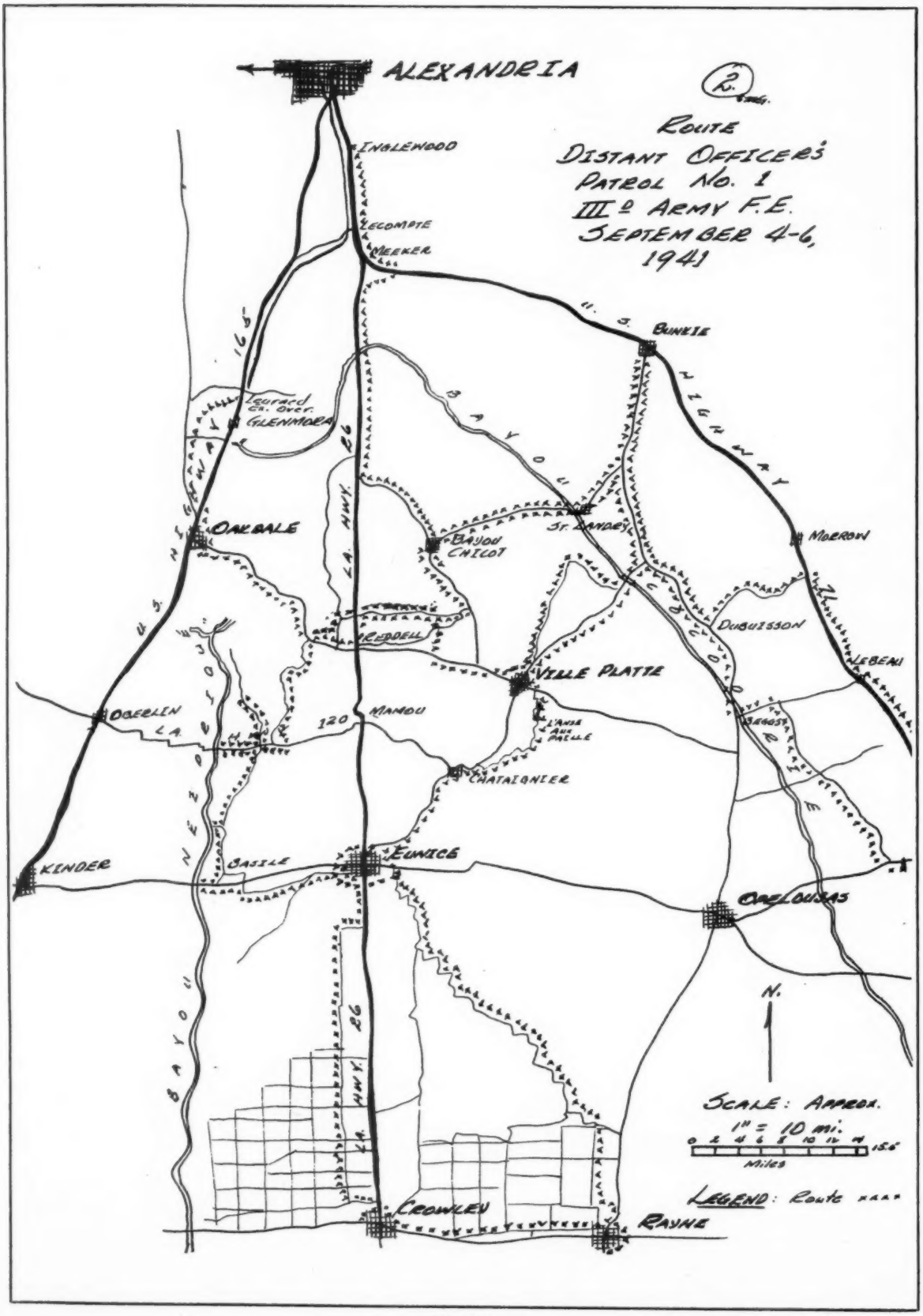
"We crossed through the local outpost line and reached the picket at BAYOU COCODRIE at 9:30 PM. This was swampy country where rice and sugar cane were the main products grown in the rich soil. Most of the roads were virtual causeways through swamps and tall fields of sugar cane rising eight to ten feet. The moon was full; a romantic night from the pages of fiction. The Red platoon at BAYOU COCODRIE had made no contact up to this time. We attempted here to make a radio report in accordance with a schedule arranged with the communications officer. Contact was impossible. Throughout this patrol radio contact was extremely difficult. Local electrical disturbance and constantly fading signals overcame the most persistent efforts of my radio operator on all but two occasions. We cleared no incoming message during this mission.

"During the entire night of September 4-5, 1941, we cautiously searched from village to village moving generally southeast. At no time did we contact any Blue troops or receive reports of their presence from friendly natives.

"A protracted halt was made in VILLE PLATTE at 6:30 AM. Here we erected a flat top antenna in an effort to establish radio communication. At 7:20 AM a signal was discerned in the static. At 8:15 while still attempting to clear a message, a section of enemy scout cars slowly and deliberately cruised through VILLE PLATTE on Highway 22, moving southeast. We were not observed.

"I verified the direction of movement of that enemy section, apparently toward OPELOUSAS. With the possibility that this single detachment might be part of a reconnaissance screen covering a mechanized movement west to east deep in this enemy territory, I turned again to the south with EUNICE as my objective via L'ANSE AUX PAILLE and CHATAIGNIER. We were deep in French Louisiana farmlands amidst a wonderfully hospitable people who were fascinated by our strange vehicle. But we were the only 'soldats' they had seen.

"We reached the vicinity of EUNICE at 11:30 AM. While successively checking the highways into and out of the town, a convoy of three trucks was observed moving into EUNICE on Highway 190. A position of observation about seventy-five yards south of Highway 190 was selected in the yard of an unoccupied farm house. Here for three hours we maintained constant observation on the highway. We were on a rear cross-communication route. Cargo trucks passed at irregular intervals going in both directions. Few actual troops were moving on this route. A message reporting the patrol's position was cleared at 1:00 PM just after a brief thunder shower. At 1:30 PM I left my driver in observation, and with the radio operator moved via section


ALEXANDRIA
2.
ROUTE
DISTANT OFFICER'S
PATROL NO. 1
IIIº ARMY F.E.
SEPTEMBER 4-6,
1941
INGLEWOOD
LECOMPTE
MEEKER
U. S. BUNKIE
HIGHWAY
165
Leased Ca. Over. GLENMORA
BAYOU
OAKDALE
U.S. HIGHWAY 71
LA. HWY. 26
BAYOU CHICOT
ST. LANDRY
MORROW
REDDELL
DUBUISSON
VILLE PLATTE
LEBEAU
OBERLIN LA.
120
MAMOU
L'ANSE AUX PAILLE
CHATAIGNIER
BAYOU NEZPIQUE
KINDER
BASILE
EUNICE
OPELOUSAS
LA. HWY. 26
N.
SCALE: APPROX.
1" = 10 mi.
0 2 4 6 8 10 12 14 15.6
Miles
LEGEND: Route
CROWLEY
RAYNE

Sketch 2

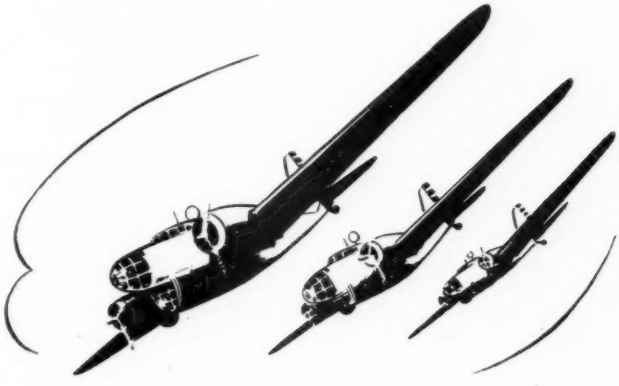
line roads to RAYNE and CROWLEY. Both places were unoccupied; the inhabitants of both had seen only an occasional army truck; were startled by my inquiry about tanks, 'army tractor.'

"On returning to EUNICE each member of the patrol was able to sleep for an hour. As darkness fell we began slowly moving to the west parallel to Highway 190. Unexpectedly at BAYOU NEZPRIQUE we were challenged by a sentry. Our answer was a quick turn into a country lane. A dismounted reconnaissance revealed a strong road block at the bridge over the bayou. I elected to try other possible crossings to the north. An indicated crossing north of BASILE ended in an impassable swamp. The crossing of Highway 120 was held by an enemy squad. We attempted to make a prisoner of drowsy sentry at this bridge, but he awoke with a start sounding the alarm as we fled to the east. We found a motorcycle section guarding the bridge over the east fork of the stream which forms the headwaters of BAYOU NEZPRIQUE. The road was impassable into and beyond their position. Exhausted, we concealed ourselves behind a country school house and each man slept for three hours.

"Soon after resuming our route to the north at dawn we emptied our last two and one-half gallon reserve tank of gasoline into the main tank. Our range was at most seventy-five miles. We were, to the best of my knowledge, that far from the nearest friendly troops. Certainly the time had come to return to friendly territory. We began a slow movement northward.

"At BAYOU CHICOT we halted to again attempt communication with the regiment. As my operator tried to pick the code from the roar of static, I learned from natives of the concentrations of Blue troops that had been in this vicinity the day before. No Red troops had been seen. So we started northeast toward INGLEWOOD via familiar roads through ST. LANDRY.

"Unknown to me as I travelled cautiously along rutted, country lanes, an armistice was signed at 9:00 AM that day, September 6, 1941, by the commanders of each force. We stalked a squadron of portée cavalry until 3:00 PM that afternoon purchasing gasoline for the purpose. At 5:00 we learned of the armistice. At 7:00 PM I fortunately located a vehicle from the 6th Cavalry in ALEXANDRIA and received directions to the command post which had been forced back to the south bank of the RED RIVER. In forty-eight hours my patrol had roamed 504 miles through hostile lines reaching at one time a position opposite enemy corps command posts. All information of armored forces reported was negative and correctly so. All armored units of the Blue army were employed west of the zone of my patrol."



Dive Bomber Tactics

A few words are necessary on the tactics employed by the power-dive bombers in attacking objectives protected by antiaircraft artillery. A group of five airplanes, two of which are power-dive machines, approach the target at an altitude closely within maximum range of the antiaircraft fire. The power-dive bombers then immediately descend upon the target, acting as if they had been hit by the antiaircraft fire below. The fire of the antiaircraft artillery is then concentrated on the airplanes continuing their flght—meanwhile the power-dive bombers complete their bombing missions.—*Krasnaya Zvyedza,* Moscow.

Evolution of the Horse*

By Captain Robert A. Boyce, Veterinary Corps

THE horse came into being about 55 million years ago. The possible progenitor of the horse is the Phenacadus, a 5-toed creature about the size of our common cat. The probable progenitor is the Eohippus, commonly spoken of as "The dawn horse." This horse was about the size of a fox, and had 4 toes in front and 3 behind. A vestige of the fifth toe was found in front. This horse roamed both the Eastern and Western Hemispheres.

Forty million years ago, the horse was about the size of the Whippet, and all visible trace of the fifth toe had disappeared.

Thirty-five million years ago, the horse was walking on 3 toes, front and hind. A vestige of the first digit was found in front. This horse was about the size of a sheep and had a span of life of only about 6 years because of his low-crowned teeth. It has been noted that the second and fourth digits were rapidly decreasing in size and that the third was increasing in size.

About 19 million years ago, there was a marked increase in the size of the second and fourth digits as the horse was living in marshy lands and these digits were coming back into use.

Then about 10 million years ago, there was again a marked decrease in the size of the second and fourth digits. Also, the teeth were higher crowned, which increased the span of life of the horse. By this time the height had increased to about 3 feet. Then all of the horses of the Eastern Hemisphere died off and the entire horse population of the world was here in North America.

About 7 million years ago, the horse started walking on 1 toe (the third), and the second and fourth became mere splints. So, here we have the progenitor of the modern horse.

In the beginning of the fourth Glacial Period, about 250,000 years ago, many of the horses migrated to Asia and North Africa by crossing over the stretch of land that is now covered by the Behring Strait; some wandered south to South America. Those remaining here perished in the snow and ice that became several hundred feet deep. All that went to South America soon died off, but those that migrated to Asia and North Africa prospered. So now we have the entire horse population of the world in Asia and North Africa.

About 2000 B.C., the Lybians were breaking and training the horse of North Africa. This horse later became known as the Arabian, and has been used to improve the common horse of Europe for centuries.

At the present time there is only one group of wild horses in the world, the Equnus Pravasky, found on the steppes of Russia. This is a blocky, dun-colored horse, standing not more than 13 hands, and has a grey beard.

The so-called wild horse or western bronc of this country is not a true wild horse but a modern horse brought to this country by the Spaniard and set free. It is known that horses were brought over by Cortez in 1519, De Vaca in 1527, and De Soto in 1541. These horses were Barbs that were bred in Spain.

Our modern horse still carries some vestiges of the pre-historic horse, namely the chestnuts, the splints and the ergots.

Man has brought about great changes in the conformation and temperament of the horse through his selection of sires and dams, and has thus established various breeds of horses. The oldest breed known is the Arabian; principal colors bay, brown, chestnut and grey. Black is a very rare color, and dun is unknown; seldom is higher than 14/2 or 14/3, and weighs from 850 to 950 pounds. The tail is set very high and carried to one side; handsome head, with broad forehead, large kind eyes, straight or concave face line, large nostrils, well carried ears and the head is carried a trifle high. His hocks are the chief point of weakness.

The Thoroughbred is the English running race horse, originated about 1660 when Charles II imported the Royal or Barb Mares. The other foundation horses of the breed are the Byerley Turk, Imp. 1689, the Darby Arabian, 1706, and the Godolphin Barb, 1724.

This breed represents the speed type in the extreme, having a straight face line, long lean neck, walk and trot low and pointing and has been used to improve all breeds except the draft. Bay and chestnut with more or less white markings are the common colors. Typical weight is about 1000 pounds and stand from 15 to 16 hands.

The Standard Breed is the harness racing type. Messinger and Justin Morgan were the progenitors of this breed which was founded on speed about 1790. To be registered as a Standard Breed the horse must trot a mile in 2:30 or pace a mile in 2:25. These horses are of all colors, sizes and shapes, but a uniform type is gradually being evolved.

The Hackney Breed was founded about 1760, by Shales, Son of Blaze, a Thoroughbred out of a hunting mare. This was formerly a road horse, but is known chiefly as a harness show horse. This breed is characterized by short legs, rarely standing over 15/3 hands. The head is square in outline, deep in jowl; neck well crested and heavy, and a heavy forehead. High flexion of knees and hocks. Chestnut color with flashy white

*Courtesy, *The Veterinary Bulletin*, July, 1941.

markings all around are most common, although bays, browns, blacks and roans are acceptable.

The Morgan type, founded by Justin Morgan, was foaled in Springfield, Massachusetts, in 1789. This was a small horse, about 14/2 and weighing 950 lbs. The colors of this breed are bay, brown, and black and chestnut; stands 15 hands or under; very compact; short, strong back, a broad head, short heavy neck, short legs.

The American Saddle Breed horse, during the days of the Western frontier was a source of excellent transportation, but now he is used chiefly as a show horse. This breed of horse was founded by crossing a Thoroughbred top line with native saddle mares. This horse is characterized by its "stand-up" appearance; has a flashy way of moving, with head and tail carried high.

The best known breeds of the draft horse type are Percheron, Belgian, Clydesdale, Shire and Suffolk. From 55 B. C. to the 18th century the draft horse was the war horse of Europe; first used to pull the chariots; later to carry infantry troops to the field of battle, and later still as a cavalry horse. Due to the fact that when used as a cavalry horse the mounted men were clad in heavy armor, and later both horse and rider were protected with armor, it was necessary to have horses of great size and strength. Up to the 18th century draft work was done by oxen or horses unfit for war service, but during the 18th century the draft horse was used as a beast of burden and has been used as such ever since.

The Shetland pony is really a draft horse type, but his growth has been stunted for centuries because of poor forage. The standard height of this pony is 42". The colors are solid, black or cinnamon brown being most common. Many ponies of this breed are of very poor conformation.

The Western Bronc, which is really a Spanish Barb is small, wiry and tough.

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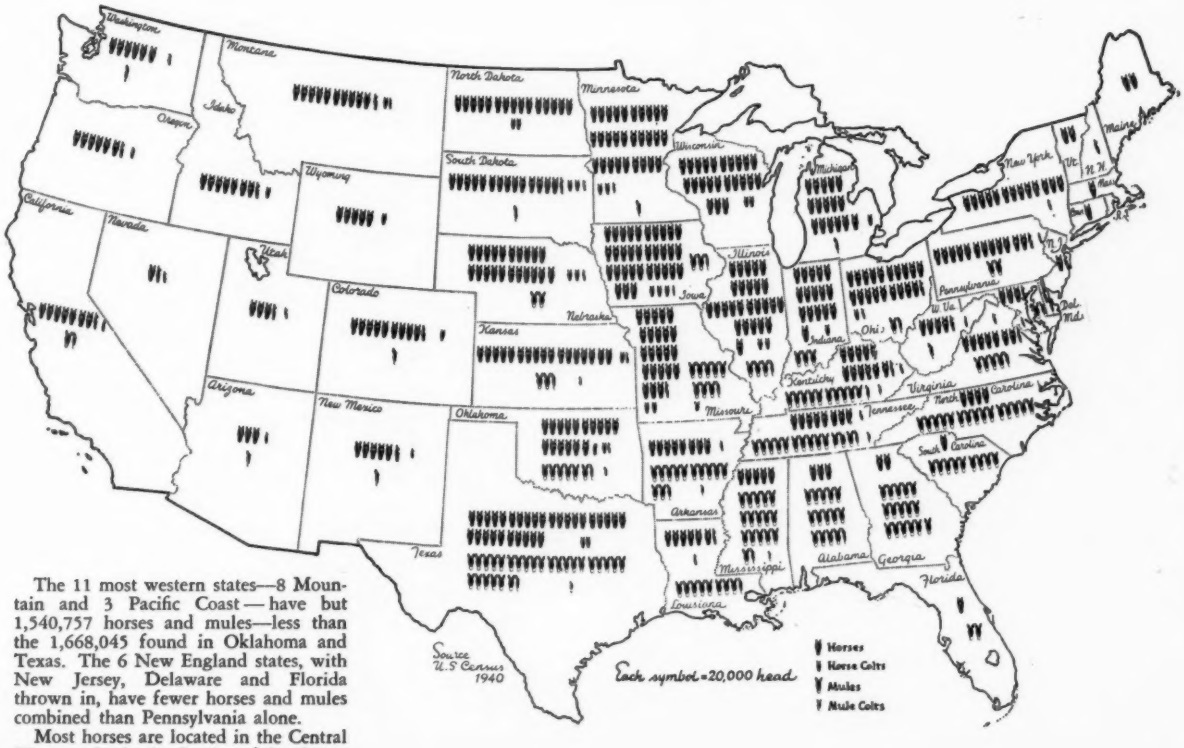
Distribution of Horses and Mules



The 11 most western states—8 Mountain and 3 Pacific Coast—have but 1,540,757 horses and mules—less than the 1,668,045 found in Oklahoma and Texas. The 6 New England states, with New Jersey, Delaware and Florida thrown in, have fewer horses and mules combined than Pennsylvania alone.

Most horses are located in the Central West, mules in the South and Southeast.

Purpose of Remount Service Breeding Plan

By Major F. L. Hamilton, Q.M.C.*

THE REMOUNT SERVICE, a Division of the Quartermaster Corps, is an integral part of our National Defense Machinery. As such, the activities of the Remount Service can be justified only when they contribute directly or indirectly to the preparedness of the Nation. The Army Breeding Plan is a part of long range preparedness planning, looking to future as well as immediate security. These long range plans, in the case of the United States with its peculiar geography and uncertain fields of military operations, must be general and all-inclusive in the extreme. It is impossible to predict where, when, or under what circumstances the Nation might be compelled to fight. It is not enough for the people in the United States to follow the fashion of the present times resulting from a deliberate choice of time, place, and terrain by aggressor nations, and to prepare mechanically to the exclusion of all else. It is necessary also, in a small way, looking toward the innumerable possibilities of the future, to give some thought to horse preparedness.

That is the mission of the Remount Service and the purpose of its breeding plan. In the operation of this plan there is, of course, a limit to what can be done. Stallions can be supplied to civilian breeders; information can be disseminated; and some encouragement can be given breeders through limited purchase of military horses. Thereafter, one relies, in accordance with God-given democratic practices, upon the cheerful, voluntary work of civilian associates to produce and to use good horses that might be made available to the defense forces in an emergency.

The Remount Service makes no pretense of dictating to any state or community the kind or type of horses to use or to produce. It is recognized that the military service must, to a large degree, adjust itself to the economic life of the nation at peace, and that the Army must in wartime adapt to military uses the livestock that farmers and ranchmen have produced in the course of their normal peacetime endeavors.

Suitable military horses are to be found in practically all sections of the country and in use in a great variety of ways. Pleasure horses, hunters, race horses, polo horses, stock horses, light farm horses; all are readily absorbed by the military service, provided they possess in common those qualifications so essential to any *good* light horse: They must be good tempered horses and they must be durable.

*Officer in Charge, Southwestern Remount Area.

Temperament is occasionally the result of breeding, but often it is a reflection of the temperament or the horsemanship of owners and handlers. Durability is the result of type and conformation, raising, and of training. If the type of the horse is such that it wears a saddle comfortably; if it is so shaped that it is naturally balanced and light on its feet with weight on its back; if it travels straight and freely at the walk, trot, and gallop; if it has been so raised that at maturity it is a horse of substance and strength; and if its respiratory and circulatory systems have been developed through intelligent work and use, it is almost certain to be a durable horse.

With the hope of improving these qualities, the Remount Service places mostly thoroughbred stallions* with civilian agents. This is done with the firm conviction that the thoroughbred is the proper foundation from which to develop light horses for any particular or general purpose. The past proves it so. Practically all the light horse breeds, worthy of a name, have their tap roots in thoroughbred ancestry. *Messenger*, a thoroughbred, was the foundation sire of standard or trotting bred horses. *Denmark*, a thoroughbred, fathered the famous American saddle horse. *Steeldust*, all controversy aside, was probably a thoroughbred or nearly so. The same may be said of *Justin Morgan*.

These facts, together with the great improvement in the horses of this country during the past twenty years, resulting from the use of Remount Stallions, furnish ample physical evidence that the Army's breeding plan is sound.

There is an awareness at this time, however, of an unsatisfactory trend. It now becomes apparent that *in some sections* there is a limit to the number of thoroughbred crosses that can profitably be put on native mares. Originally, the thoroughbred springs from small, slight, desert-bred horses that in their natural habitat are little more than ponies. Through generations of forced feeding and care, almost to the point of pampering, the thoroughbred has come to have considerable size. Deprived of this feed and care and left to make his own rough way the breed is likely to revert to type and become small and weedy.

To derive the maximum benefit from these stallions;

*The Remount Service at present has 724 stallions dispersed throughout the United States which are used in carrying out the Army Horse Breeding Plan. As to breeds, these stallions are divided as follows: Thoroughbred, 686; Arabian, 18; Morgan, 15; Saddlefield, 4; and Cleveland Bay, 1.

Every horse in this picture was sired by a Remount stallion.

to develop a line of horses suitable to local needs; to produce horses that will find a reasonable market; and to help in placing a military reserve of suitable horses in the country—individual breeders should look farther ahead. While the Remount Service can continue to furnish stallions, the mere pouring of blood in at the top will not insure the production of good horses. Selection of brood stock, proper matings, and a long period of adaptation, blending, and absorption is necessary if anything worth while is to be produced.

Strangely enough, the improvement resulting from breeding to thoroughbred stallions is most obvious and most encouraging in the first cross. Bred to a big, straight, roomy mare, the resulting half-bred generally shows an unbelievable improvement. From there on, the number of crosses that can be made with profit and pleasure will depend almost entirely on the amount of intelligent care and feed that can be given to the growing colts; especially during their first two winters.

It is the hope of the Remount Service that those who take pride in the ownership of nice horses, and who have the experience and facilities necessary to produce them, will make full use of Government stallions, to the end that the light horses of the country may become military assets available to the armed forces in an emergency.

Pure-Bred Horses Donated to Army

DONATION of 12 pure-bred Arabian horses to the Army by the Arabian Horse Club of America, Chicago, Illinois, was announced recently by the War Department. The horses were delivered to the Robinson Remount Depot, operated by the Quartermaster Corps at Fort Robinson, Nebraska.

Eight mares, two fillies, a stallion and a colt were given to the Army. The step was taken, according to the club, not only to assist the national defense effort, but also to perpetuate the Arabian strain which is being seriously threatened by the European War.

By careful breeding for more than 3,500 years the Arabian has developed as a superior type of saddle horse. Arabian blood is the foundation of the thoroughbred and other modern breeds of riding horses. Mares mature when about five years old and stallions when six years old, but they often live to be 30 years old.

Arabian colts are considered by horsemen as easy to train. Courageous and high-spirited, the Arabian horse usually is unafraid of men, noises, and other animals.

Members of the Arabian Horse Club of America who made donations and the names of the horses are:

From Mr. Henry B. Babson, Chicago, Illinois, bay mare, *Fadahman.* From Mr. J. M. Dickinson, Franklin, Tennessee, chestnut mare, *Babolna* and chestnut colt, *Mazeppa,* foal of 1941. From Mr. A. W. Harris, Chicago, Illinois, grey mares, *Horma* and *Kehefe;* bay mare, *Niht;* and bay stallion, *Katar.* From Mr. W. K. Kellogg, Pomona, California, grey filly, *Sonata;* chestnut filly, *Rifnetta,* and chestnut mare, *Surana.* From Mr. Roger A. Selby, Portsmouth, Ohio, chestnut mare, *Mirzaia.* From Mr. L. W. Van Vleet, Denver, Colorado, grey mare, *Ragia.*

Troop B, 252d QM. SQ. (Remount) On Maneuvers

By Captain James P. Burns, Quartermaster Corps

ON April 28, 1941, the first Remount Troop since World War I was activated at Fort Robinson, Crawford, Nebraska. The enlisted personnel consisted of young men, primarily from the states of Missouri and Nebraska, who had received no training at a Replacement Center. Officers were Reserve officers from the states of California, Kansas, South Dakota, Utah, and Virginia. After intensive training under ideal conditions, but only for three months, this troop was ordered to Louisiana to participate in the maneuvers.

On August 5, 1941, a permanent change of station from Fort Robinson, Nebraska to Fort Bliss, Texas, and a temporary change of station to the Army Maneuver Area (ARARAT, LA.), were ordered for Troop B, 252d Quartermaster Squadron (Remount). The troop was assigned to the Third Army.

The Troop movement was accomplished by troop train (four officers and 174 enlisted men, Captain James P. Burns, commanding) and truck convoy, (1 officer, 3 enlisted men and 2 trucks) without incident. The Troop went into the field without the following Table of Basic Allowance equipment: one half-ton pickup truck, one motorcycle with side car, one 1½-ton cargo truck (left at Fort Robinson for repairs) and one two-horse trailer. Throughout the period of the maneuver the Troop was equipped with one inadequate, old style, wood-burning field range. This was also used to mess the outfit while on the train. This field range has been replaced with three gas-burning ranges since our return to Fort Bliss.

The Troop arrived at ARARAT at 10:15 PM on August 7th and because of surrounding swamps, bivouacked along a road bed. Every effort had been made to contact the Third Army Headquarters but no one in authority could be located. Contact was established with Third Army Headquarters early August 8th, and the Troop moved by motor transport to a bivouac area north of REEVES, LA. The period August 8th to 13th was spent at REEVES. A picket line area and bivouac area were cleaned out and a water point was built on an adjoining creek. The motor convoy from Fort Robinson joined at REEVES on August 11th. On August 14th the Troop was ordered to a bivouac area southeast of SEALE, LA. The move was accomplished by motor transport (Motor Pool Third Army) without incident. The period August 15th to September 2nd was spent in the bivouac area at SEALE. During this period 676 animals were received and 339 animals were issued.

On August 15th a long-contemplated reorganization of the Troop was effected. A horse record section was established, and the following system of identification was set up: each Cavalry Regiment, Field Artillery Battalion and Separate Troop was assigned a color, and a short piece of yarn of this color was tied into the halter of each animal received; this was left on when the animal was shipped. A copy of the color code was furnished the 1st Cavalry Division veterinary officer who was in charge of evacuating and receiving 1st Cavalry Division animals. A horse record card system similar to that used at a Remount Depot was also put into effect. These two systems enabled the Troop to complete the maneuver without an instance of a lost animal. Each training platoon was assigned all animals from certain front line units and kept this assignment for the duration of the maneuver.

Most of the animals received from the front line units were very thin and about 65% of the animals received had sore backs. The daily routine was devised to take cognizance of these two facts. Animals were exercised by tying two or three animals together with halter shanks and leading the near animal from astride a riding horse.

At SEALE, three attempts were made to prepare watering points. These ways were unsuccessful, due to the nature of the soil underlying the creeks. A bucket brigade was used to fill water troughs on August 15th, and on August 16th a gasoline pump and hose were borrowed from the 8th Engineer Squadron. This was used successfully for the duration of the maneuver. The small canvas water tanks supplied were found to be impractical in that too much time was consumed in watering 300 to 400 animals. A large tank, composed of a large paulin and timber, was constructed and used for the duration of the maneuver. This tank had a watering capacity of twenty-five horses.

On September 3rd the Troop was ordered to a position about one and one-half miles southwest of REEVES, a distance of 33 miles by road. Since 25 miles of this distance was fenced, paved highway, with shoulders unsuitable for animal traffic, an alternate cross-country route was laid out. By using the cross-country route it was possible to strike a dirt road and also to cut off six miles. Particular mention is made of this march because of the interesting features it involved. No aerial photo maps of the area were available and prior reconnaissance was impossible due to lack of time and lack of a light scouting vehicle. One small privately owned compass and one copy of the standard army maneuver (uncontoured) map were available. The march was accomplished in three echelons. Eight escort wagons, lightly loaded, eight men, with rations, and sixteen draft horses moved out on the afternoon of

September 2nd. Behind the escort wagons were tied fifteen horses that were judged to be physically unable to make the trip in one day. This echelon made eight miles on September 2nd, and the remainder on September 3rd. The second echelon, headquarters section and the stable platoon, moved out by truck and highway at 10:00 AM on September 3rd. The third echelon, 4 officers, 101 men and 374 horses moved out at 7:00 AM on September 3rd. This group consisted of the Veterinary Detachment and the three training platoons. A torrential rain set in soon after the Troop departed and continued until about 2:00 PM. Four unbridged streams were crossed on this march. The first was bridged by the Troop on September 2nd. The second was forded but the bottom went out so rapidly that the other two were bridged with whatever timbers were handy. These four crossings were completed without accident, but at the cost of several grey hairs in the Troop Commander's head. Men and horses reached the new bivouac area at 4:00 PM. 374 animals were taken cross-country a distance of 12 miles, and by dirt road for 15 miles, total 27 miles in a total elapsed time of nine hours including all halts. Morale was extremely high on this march.

At the bivouac at REEVES the Troop built seven earth and timber crossings so that horses could be led from water to the picket line and to the Veterinary dispensary. This was made necessary because of continual rain and mud. At this camp the Troop reached the saturation point as far as horse exercise was concerned, and a 100 horse corral and feed bunks were constructed. The material for this work was obtained without charge from a local sawmill. Forty-five of the thinnest horses were put in this corral and maintained.

At REEVES we received orders to go to the KISATCHIE NATIONAL FOREST to pick up three loose, unidentified, government horses. This was a round trip of 160 miles and the only available motor transportation was a 1½-ton cargo truck. The executive officer was charged with the transportation of these animals and devised a stock rack body for a cargo truck which carried the three animals without a hitch. These horses were later identified as belonging to the 12th Cavalry.

Weather conditions were extremely bad during the period the Troop was at REEVES. It rained every day, and the picket lines had to be drained every morning. Morale was much lower during this phase than at any other part of the maneuver. During the period September 3-10th, 85 horses were received and 8 were issued.

Late on September 11th, orders were received to move to MERRYVILLE, LA., a distance of 45 miles. This involved another cross-country move of 15 miles, 19 miles by dirt road, and 11 miles by gravel road. The move was made in three echelons and was accomplished in two marches of 23 and 22 miles respectively. The weather was extremely hot and it was necessary to evacuate 6 horses, suffering from heat exhaustion, at the end of the first day's march. The Troop bivouacked at a stream crossing about two miles west of LONGVILLE, LA. A total of 423 animals were moved by the third echelon. Morale on this march was again very high.

The period September 15th-19th was spent in bivouac at MERRYVILLE. This period was very pleasant as we were only 400 yards from a fine supply of deep well water and only 200 yards from the 30th General Veterinary Hospital, from whom we received a number of animals. On September 14th we issued 266 animals to the 1st Cavalry Division. On September 19th, the 30th General Veterinary Hospital made a shipment of horses to the home stations of the several units and Troop B, 252nd Quartermaster Squadron (Remount) furnished 22 head for this shipment.

The value of cover and concealment was amply demonstrated at this camp. The Troop had bivouacked in a scrub oak grove and was well concealed from the air. On September 17th Red bombing planes passed directly over our area and bombed the area of another unit only one-quarter of a mile from the Troop.

On September 20th, the Troop was ordered back to its old bivouac area near SEALE, a distance of 25 miles. The move was again made in three echelons with the third echelon covering 20 miles, all cross country. Orders to make this move were not received until 11:00 AM and the horse elements moved out at 1:00 PM. Morale was again extremely high on this move and all men and animals finished in fine shape.

On September 26th, Troop B rode and led 105 horses to DE QUINCY, LA. (a distance of 8 miles), and shipped 4 carloads of horses to Fort Bliss. (Two attendants were sent with this shipment.) On September 27th the Troop and its remaining horses (66) were ordered to DE QUINCY. The period September 27th to September 29th was spent at DE QUINCY, cleaning equipment and washing clothes, in preparation for the movement back to home station. The remaining horses were gradually let down and were shipped, with one attendant, to Fort Bliss on September 30th. On September 30th the Troop loaded its heavy equipment on a box car, retaining only what was necessary for the trip home.

On October 2nd the Troop moved to a concentration area near MANY, LA. On October 3rd, Company "I," 29th Quartermaster Regiment, one radio equipped reconnaissance car, a gasoline type field range and stock rack truck, and one semi-trailer were attached to the Troop for the march to Fort Bliss. This composite organization made the journey, as a march unit, without incident and the Troop arrived at Fort Bliss at 1:00 PM on October 8th.

During the maneuver the Troop received a total of 860 animals, and issued 646 animals to the front line units, issued 19 to the 30th General Veterinary Hospital, shipped 171 to Fort Bliss and 22 to Fort Clark.

Plans are now being made to open a field remount depot.

First Army Reconnaissance*

By Captain Chauncey E. Howland, 102d Cavalry

ADMINISTRATIVE

ON 27 October, 1941, the C.O., 2d Squadron, 102d Cavalry (H-Mecz), was informed that the Squadron was to be attached to 1st Army and based in the vicinity of Albemarle, N. C. Quartering parties were sent out to reconnoiter and the necessary attachments of Regimental personnel, vehicles and equipment were made to provide supply, medical, administrative, motor maintenance and radio repair facilities. It was realized that the Squadron, a tactical element, must be self sustaining as far as possible. Personnel, vehicles and tools were provided in a very satisfactory degree by the C.O's of Headquarters, Service Troops and the Medical Detachment.

The Regimental Commander was ordered to report to General Drum at 1st Army Headquarters and was accompanied by the Squadron Commander. The General pointed out that the reason for the attachment was to provide an Army Reconnaissance element to operate similarly to Corps Cavalry, but over a wide area with greater distances involved. It was to move rapidly outside the sphere of Corps Cavalry, reporting directly to Army.

On November 1, 1941, the Squadron moved from the KERSHAW area to the ALBEMARLE bivouac prescribed in the following march table:

HEADQUARTERS, 2D SQUADRON
102d Cavalry (H-Mecz)
Vicinity of Kershaw, South Carolina

31 October 1941

2D SQUADRON MOVEMENT)
:
No. 1)

Maps: Esso Road Map of South Carolina and North Carolina, 1941.

1. The Second Squadron plus attachments will move to the maneuver area, vicinity of Albemarle, N. C., Saturday, 1 Nov. 1941.

2. a. *Route of March:* Route U. S. No. 521 to Lancaster, Route 200 to Monroe, Route 151 to RJ 151-27, Route 27 to eight miles east of Albemarle.

b. *Initial Point:* U. S. Route No. 521 and dirt road leading south into Bivouac Area. Head of First Serial will pass IP at 8:00 AM. Five-minute interval between serials. The first serial will clear the bivouac area at 7:30 AM and form with its head at the IP. Serials will leave the area at 10-minute intervals.

c. *Rate of March:* Average speed 25 miles per hour. Leading vehicle each march unit not over 30 miles per hour. Individuals regaining lost distance not in excess of 35 miles per hour. Distance, 100 yards between vehicles. Through Heath Springs, Lancaster, Monroe and Albemarle 15 miles per hour, 5 yards distance.

d. *Order of March:*

2d Sqdn Hq.
Troop D less, kitchen & combat } ..... Serial No. 1
Troop E, less kitchen & combat) ..... Serial No. 2
Troop F, less kitchen & combat) ..... Serial No. 3

Radio Jeep, Sqdn ½-ton, kitchen & combat vehicles of D-E-F Troops, 5 trailers (D-2d Sqdn Hq.-E-F-(2),) Radio Maint. ..... Serial No. 4
Two Sqdn gas trucks, Medical Det .....
Two Squadron Motor Maint. Trucks ..

3. *Uniform:* Breeches, woolen, elastique; shirt, woolen; boots; cap, field; belt, pistol or cartridge with suspenders. (FIELD Jackets may be worn.) Squadron & Troop Motor Maintenance crews will wear coveralls or denims.

4. *Rations:* Sandwich lunch for Saturday, noon, will be carried.

5. *Communications:* Net opens 7:30A. 2320 KC. VOICE.

By Order of Captain Howland:
(Signed) FRANK A. TEOFANI,
Second Lieutenant, 102d Cavalry (H-Mecz)
S-1-4.

* * *

A satisfactory base camp had been picked 3 miles north of Pee Dee Bridge, Route 27 on the east side of the river. No telephone installation was available due to the remote location, and radio contact was maintained with few interruptions to 1st Army at HOFFMAN, a distance of 60 miles. This was accomplished by using an antenna cut to ½ wave length and oriented on HOFFMAN.

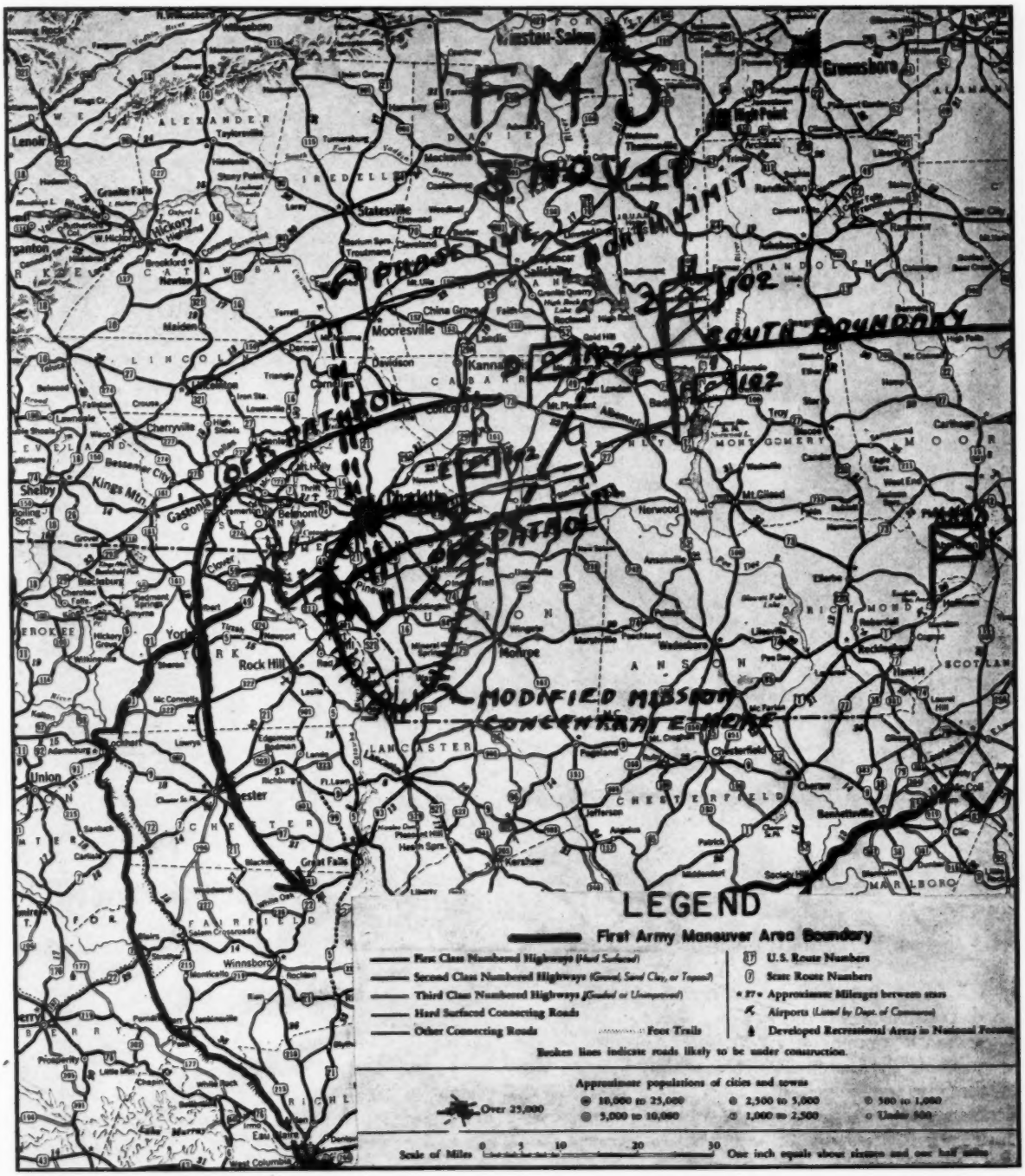
Staff Sections of 1st Army were contacted and the details of all classes of supply, communication, ordnance and quartermaster repair, and medical evacuation were worked out. Alternate supply points and rail heads were provided. Provision for a reserve of 2 days' B and 2 days' C ration were made in addition to the regular daily A ration. A 5,000-gallon Gasoline Tanker and Dispenser was provided. Racks to hold five cans of gasoline on the rear of each car had been fabricated by Service Troop from salvaged steel cots before leaving. The balance for all cars was rushed through and installed at ALBEMARLE. This, plus two 6 x 6 Squadron trucks with 120 spare cans each, contributed greatly to the long range

*Report of Detached Service of 2d Squadron, 102d Cavalry (H-Mecz), Fort Jackson, S. C.

operating ability of the cars which was so necessary considering the distances to be covered: (A number of cars traveled over 700 miles in a single maneuver). They were especially helpful reservoirs to long range patrols in enemy territory whose source of gasoline was the ambush of enemy supply.

The Squadron operated through Army Reconnaissance (Prov) commanded by Brig. Gen. Lindsey McD. Silvester and later by Brig. Gen. Henry Terrill, Jr. It was designated Army Reconnaissance Det "N"—and in the three maneuvers covered the north or west flank of the Army. An Army Reconnaissance Det "S" composed of portions of the 1st Tank Group covered the south or east flanks.

The procurement of motor vehicle parts and the Troop and Squadron Maintenance insured that all cars remained in good running condition. No cars were towed back to base camp.



Map 1

The health of the Command was excellent although the temperature at base camp was below freezing nearly every night. The only medical evacuations were those occasioned by an overturned scout car.

The arrangements made with Army to provide alternate emergency supply points proved to be very helpful, providing freedom of action.

The Army provided thirteen 245 radios and one 193 radio car making a total of 27 sets in the Squadron; one set per section, although our own 203 sets were inadequate. The communications set-up is the limiting factor in all successful reconnaissance. The efficiency of the Squadron was enhanced greatly by the amplified radio set-up.

The use of extended ½ wave length antennas increased the range of all the radio sets in some cases to three times the normal range.

Base camp luggage of the entire Squadron was transported satisfactorily both ways by 4 horse tractors provided by Service Troop.

The return trip to Fort Jackson proceeded according to schedule 1 Dec. 1941, no vehicles being towed.

TACTICAL

Missions, changes, modification, dispositions and hours are drawn from memory as the Squadron was operating constantly in enemy territory throughout all phases, requiring that orders be burned, SOI's and authenticators memorized before jumping off. Operations maps were sparingly marked and overlays burned as soon as information was transferred.

FM 3

Mission: To cover with reconnaissance the north flank of the Army, discover, report, and delay armored elements. Ordered not to cross initial line (Route 52) before 4:00A. I decided to place Troop E on the left and Troop D on the right to move forward rapidly to Route 21 with particular attention to Routes 21, 29 and 29a, and 27. I ordered an officer's patrol from Troop E to move rapidly south of CHARLOTTE to the vicinity of FORT MILL and from Troop D to move in a wide swing west and south through YORK behind red main body (this patrol eventually reached COLUMBIA). The Squadron axis was Route 27.

Troops D and E moved out from base camp at 3:00A. The Squadron with Troop F in reserve followed at 4:00A. The Squadron advance guard, composed of a platoon of Troop F had a serious accident on a precipitous road a short distance out. A scout car overturned causing the immediate death of the driver and pinning all of the occupants under the car, blocking the road. At this time a message from Army ordered the Squadron to jump off at 5:00A. Messengers were sent out, the car lifted, occupants evacuated and the balance of the Squadron moved in 25 minutes due to the excellent state of training of the troop, medical and communications personnel. The attack was launched on time.

The Squadron was immediately successful in getting back valuable enemy information reaching its first phase line and patrolling while officers' patrols moved by stealth through enemy territory. A combined reconnaissance and counterreconnaissance screen was operated. Through the medium of radio and messenger they furnished information of enemy elements, armored supply depots, rail heads, ponton bridges and when the Armored Division moved into the area the composition, identification of units and direction of movement was reported. Numerous prisoners were taken, causing a disposal problem but gaining valuable identifications, SOI's and marked maps.

A modification of mission was received from Army at 1:00A of the morning preceding the cessation of hostilities. Troop commanders were ordered to a rendezvous at LOCUST and arrived at 2:30A simultaneously with the Squadron Commander. Troops were swung into a new position with a concentrated reconnaissance ordered in the area CHARLOTTE, PINEVILLE, FORT MILL, VAN WYCK, WAXHAW, INDIAN TRAIL, MIDLAND.

When the maneuvers ended, Army was being informed of the presence of 171 Tanks with company designations; 69th Armored Regiment, companies (D E F H I) crossing Ponton Bridge near VAN WYCK.

The work of the patrols, cut off for 5 days, obtaining gasoline by capture, and subsisting on C rations was superior.

Communication over the extreme distances (130 miles from Army) was difficult until the expedient of extended antennas was used. It then became satisfactory and was the lesson needed to provide wire for improvised ½ wave length antennas for troops during next phases. SCR 245 and SCR 193 radios were used.

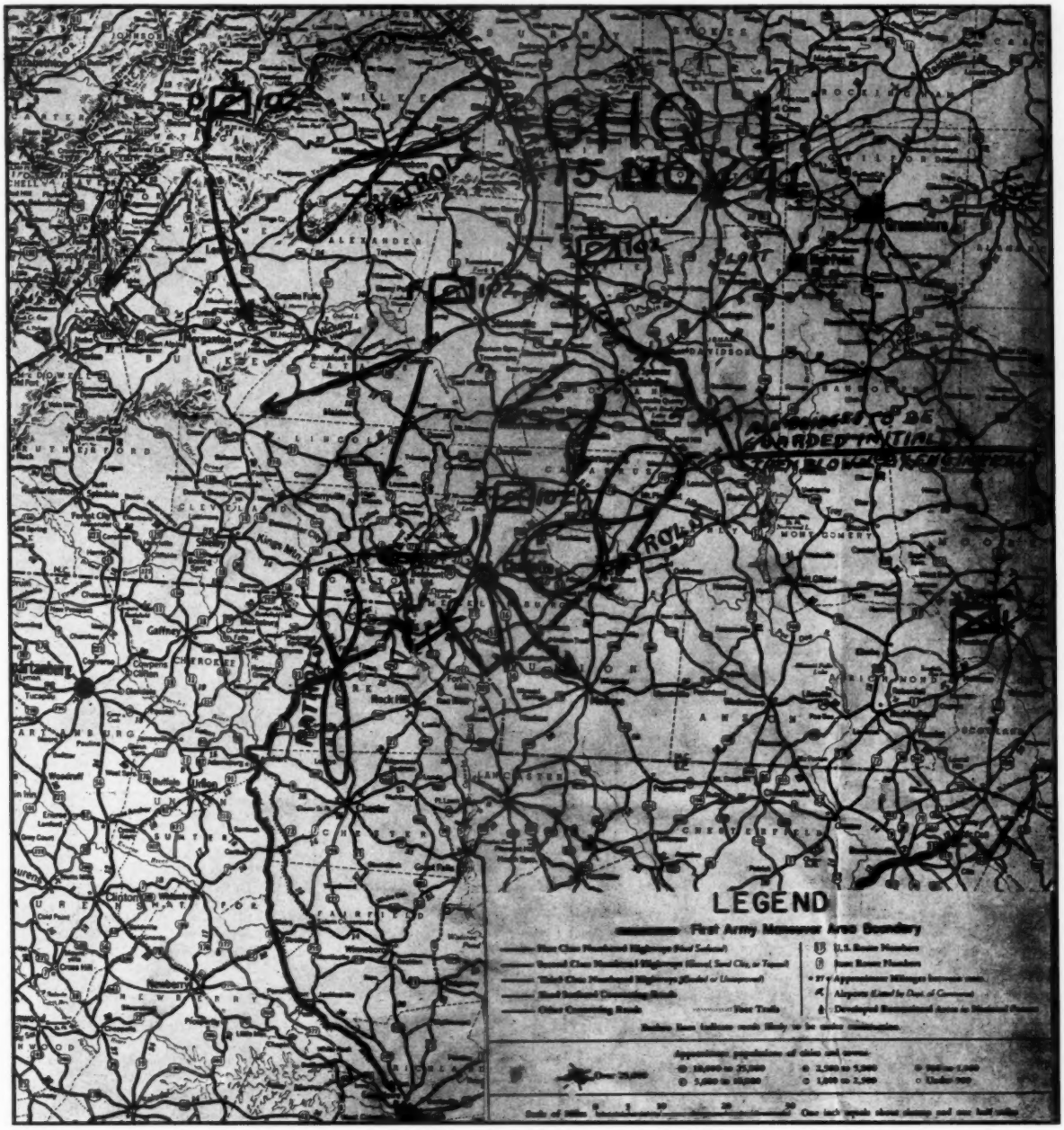
The Squadron averaged 80 messages per day to Army by radio, and telephone, the radio being the most consistent.

At the conclusion of the maneuver Troops were ordered to assemble and proceed to base camp by unit, thus reducing the traffic congestion. All elements except the distant D Troop Officer's Patrol were returned within 12 hours with all vehicles intact.

GHQ PHASE NO. 1

The realization of communications difficulties was anticipated prior to this phase. Thirteen SCR 245 radios were provided by Army and installed in our scout cars. Two thousand feet of wire was obtained and operators were instructed how to figure a half wave length for the frequency to be used. Arrangements were made to obtain homing pigeons from private lofts at LEXINGTON, N. C., and a relay station was established there with Army birds to Army HQ. One company less a platoon of the 38th Engineers was attached with additional supplies of explosives and land mines.

Mission: Initially to cover all bridges of South Branch YADKIN RIVER from Route 29 northwest to



Map 2

Route 21, thence north to INDEPENDENCE, VA. At jump off move rapidly west mining all bridges until contact was obtained, then delay by mines and fire.

This initial front was 100 miles long. Bridges to Route 21 were to be taken over by a company of the 61st Engineers and blown immediately, leaving no means of exit. Squadron to cover by fire until their arrival. I contacted the Engineer Commander and ascertained that they could arrive about 8:30A.

Attached engineers were divided between troops keeping Company Headquarters and one squad as reserve. This provided a kitchen for the Squadron and just sufficient personnel for the troops to drop off at mined bridges in the area. Troops were given areas of advance, E on the south, with an Officer's Patrol south of CHARLOTTE, F in center and D on north. A first phase line was designated, CHARLOTTE, Route 16, HICKORY, Route 321, BLOWING ROCK. The night of 13-14 Nov. the Squadron moved to the vicinity of COOLEEMEE, N. C.

Sixty-three pigeons were obtained and distributed to troops to be divided down to sections and patrols. Instruction in their care and use was given. Final supplies were issued, instructions on strength reports and ration

returns given and the last G-2 information available. At dark, 14 Nov., troops moved into positions with orders to push forward at 7:30A, Nov. 15, leaving a section with engineers at each bridge. These sections on being relieved by Combat Engineers were to cross the river, converge at Route 801 to establish bridgehead for Squadron Headquarters if necessary and then rejoin their troops, except for platoon of Troop D kept in reserve.

Troops moved out on time. Engineers did not arrive as scheduled and Squadron Headquarters at 8:30A crossed the river without resistance moving to WOODLEAF. During the day engineers arrived releasing the sections left behind and blowing the bridges. Troops moved rapidly into positions and established a screen covering area of 4,500 square miles. Troop D on the north flank was 135 miles from Squadron C.P. and established successful uninterrupted radio communication with 245 sets at both ends.

As the maneuver progressed movements of the 1st Armored Division and all reconnaissance elements were obtained and sent to Army. The 1st Armored Division moved in through the maneuver area and cut along behind the reconnaissance elements of the VI Corps. This was reported to Army and I started to draw sections from Troops D and F to keep contact with this force. They moved into the area GOLD HILL, MEISEN HEIMER and were surrounded by tank attackers. Their means of exit was mined on the north by a section of the Squadron. At this time a patrol from the reserve captured six 6 x 6 trucks containing 3,600 gallons of Diesel oil and gasoline for the Armored Division. The gasoline was dumped into the Squadron Tanker and the personnel and trucks turned over to friendly troops of the VI Corps.

As the maneuver progressed and it became apparent that no wide encircling move was imminent, the two troops on the north, D and F were depleted of platoons to be used directly by Squadron toward the south in order to properly protect by reconnaissance the north flank of the Army. Patrols were sent into the maneuver area and reported strength, disposition and direction of movement of numerous units, sending back captured officers and releasing unimportant prisoners.

No action developed to an extent north of the maneuver area. The enemy counterreconnaissance screen was ineffective and 90% of the information requested directly by Army was obtained as well as the normal flow of information. Enemy radio intelligence was active and necessitated changes of frequency and call letters under adverse circumstances, a lesson which provided the advance planning of a coded change for frequencies and call signs in the following maneuver.

At the conclusion of the maneuver the Squadron was covering a line in the form of an "L" over 150 miles long with majority of bridges and main roads in the "L" mined and guarded. The 1st Armored Division was unable to extricate itself. Eighteen hours were required to assemble the Squadron at base camp. There was no disabling vehicle damage and only minor casualties.

GHQ PHASE NO. 2

Prior to the beginning of this phase General Terrill assumed command of Army Reconnaissance (Prov). On 24 Nov. 1st Army moved to TROY and closed at HOFFMAN at 3:00P. Orders were issued at TROY for the new mission. The maneuver was laid out in a north-south direction. The INTERNATIONAL BOUNDARY extended from ROCKINGHAM west on Route 74 to CHARLOTTE, thence north along Route 21 to MOORESVILLE.

Mission: To cover the right flank of 1st Army in an area east of the CATAWBA RIVER to flank of VI Corps-MOORESVILLE, CHARLOTTE, Route 21 to crossing of CATAWBA, ROCKHILL—not to cross INTERNATIONAL BOUNDARY before 5:00A (25 Nov).

Troops were disposed with D on north facing the river to the west and E on south facing south. Troop boundary between troops Route 74 west of CHARLOTTE. D Troop to send patrol to GASTONIA, YORK, CHESTER. Troop E to send patrol to VAN WYCK, WAXHAW area, F Troop in reserve with Squadron at NEWELL. Each troop had engineers attached.

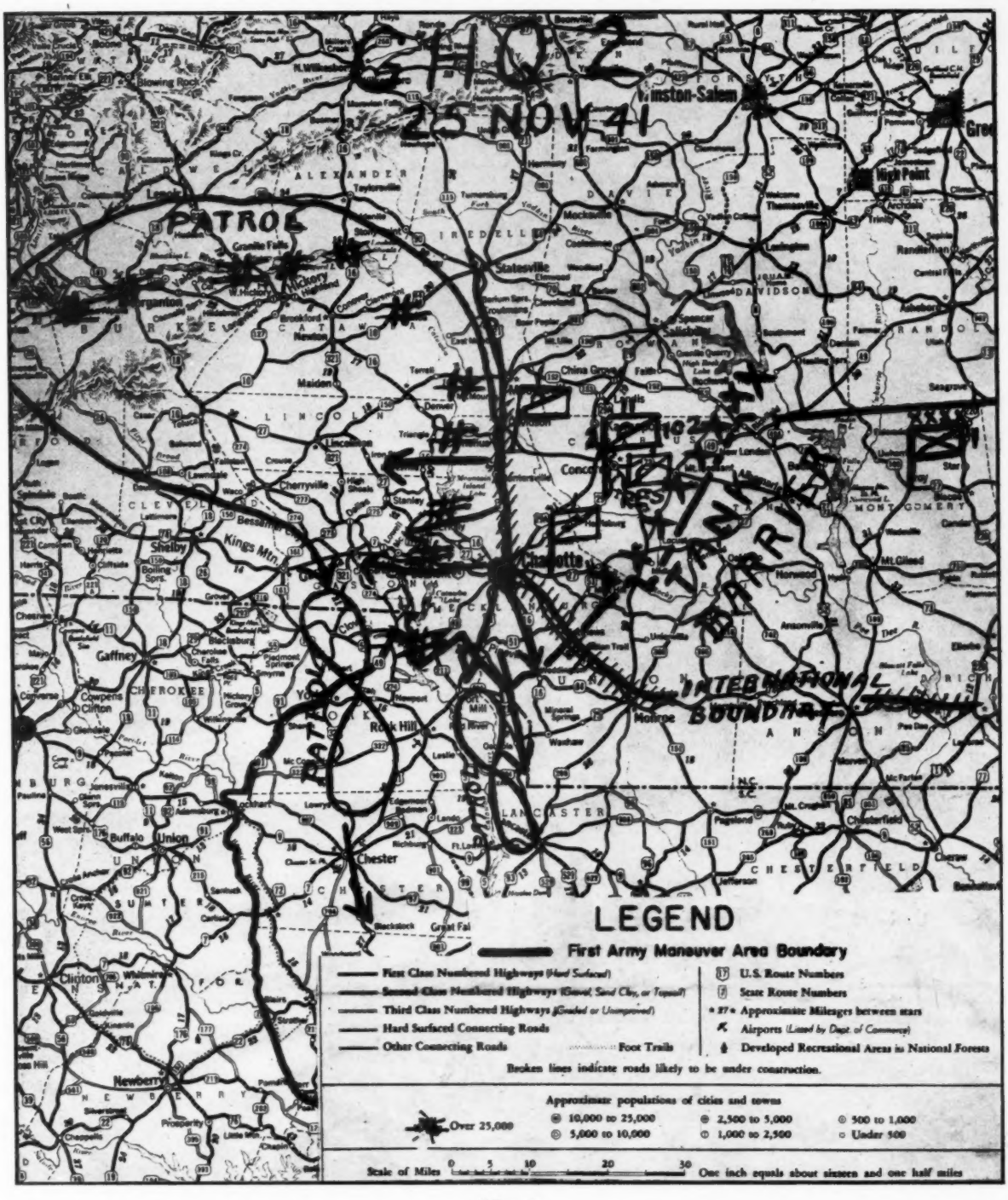
At 5:00A (25 Nov.) the troops crossed the line and immediately ran into a strong counterreconnaissance screen composed of entire 6th Cavalry with the Mechanized Squadron of the 107th Cavalry on the north portion and 6th on the south. Troop D (107th), sent out sufficient force to seriously engage the Squadron C.P. and it was moved at 9:00A to a point south of CONCORD. Operation outside the maneuver area on this and preceding maneuvers made the problem of concealment difficult as all roads were considered defiles and the Squadron Headquarters with attached engineers, supply and maintenance sections was unwieldy.

Troop D proceeded west to the river and ran into determined resistance at all bridges. They blew the northernmost bridges and got the patrols across the others.

Troop E was in constant trouble with superior reconnaissance elements but managed to get out patrols and effectively cover the assigned zone. The flow of information was immediate. Disposition of armored and motorized elements and cavalry reconnaissance elements and ponton bridge was constant throughout the entire maneuver. Contact with Army was excellent.

During the maneuver Army ordered a change of reconnaissance zone in a more southerly direction. Troop F relieved Troop E and penetration into hostile territory was increased. Troop D sent 2 platoons across the river, by fording, then south to CHESTER. Elements of Troop F were preceding the VI Corps in its last drive to the CATAWBA when the maneuver ended.

During the previous night Troop D had captured the C.O. of the (107th Cavalry) Squadron of the 6th Cav-



Map 3

alry and reported constantly the whereabouts of the C.P. 6th Cavalry.

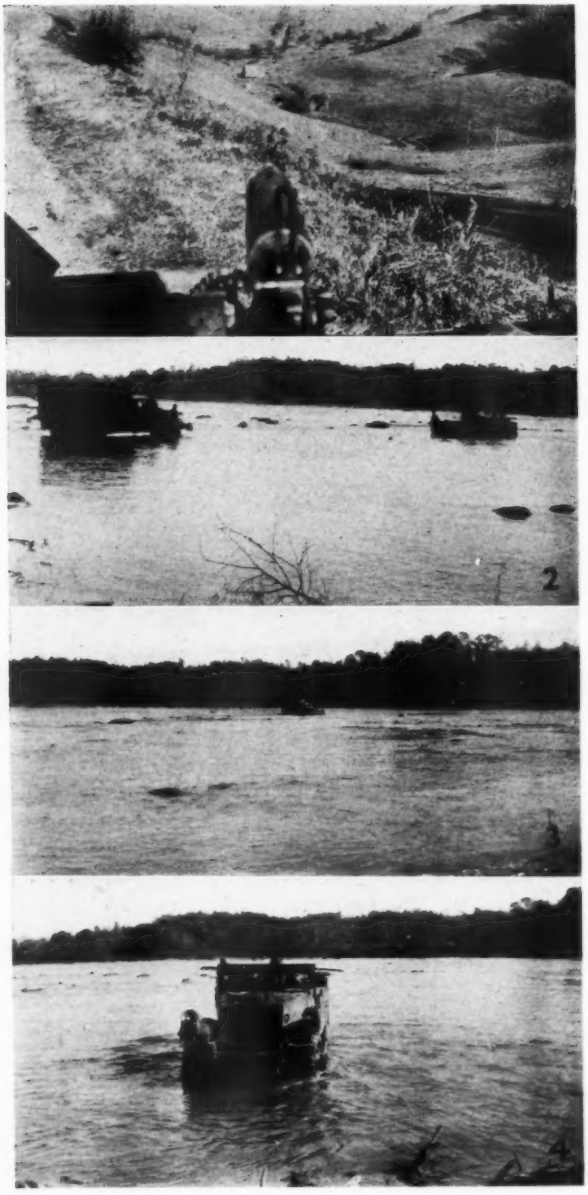
At the end of the problem 28 Nov., Troops D and F were completely engaged without reserves, Troop E was in Squadron reserve.

Losses in this maneuver were severe. On successive days each troop in action lost as high as 40% of its cars due to the heavy screen and all out missions given.

Communications were excellent, all vehicles were in running order. Numerous prisoners were taken. The Squadron C.P. cleared over 500 messages.

COMMENTS ON DETACHED PLATOONS

One platoon each from Troops D, E, and F were detached late in Sept., 1941, to form the nucleus of the reconnaissance elements of 1st Army Tank Attackers



1—Type of terrain, field of fire. 2—Fording Catawba River. 3—Another view of fording the Catawba. 4—Coming ashore.

and Antiair Borne Troops. These platoons moved out on the secret mission taking all of the organic equipment of a platoon plus certain troop equipment with them. Infrequent reports indicated the satisfactory manner in which each was working. Comments of superior officers and observers were highly gratifying.

The loss of these platoons reduced the capabilities of the Troops by 25% and made each troop the approximate counterpart of a Division Reconnaissance Troop.

NOTES AND RECOMMENDATIONS

Especially when the Squadron is to operate as a separate unit and often as a part of the regiment the following notes and recommendations are considered to be of interest:

Radio: Powerful sets such as the SCR 193 are desirable. Failing this, each car should be equipped with sufficient wire (at least 250 feet) stranded No. 14 with ceramic insulators and rope to extend its normal range of operation through erection of a fairly efficient antenna.

Pigeons: When possible pigeons should be used. When a unit is cut off this is an excellent means of communication. Birds good for 100 miles of travel are trained easily. With proper care they can be kept several days. (They are very susceptible to carbon monoxide.)

Liaison: Better liaison planning for a reconnaissance element is necessary. The larger unit must provide an officer equipped with all possible information concerning his commander's plan and with call letters, frequencies, etc.

Food: A kitchen is almost an absolute necessity for an augmented Squadron Headquarters. Troops need more ½-ton 4 x 4's to take food to platoons. On distant patrols requiring several days platoons might be equipped with a ½-ton truck and one section of kitchen unit. Kitchens should not be called back to get rations. They must stay hidden with Troop Headquarters. Half-tons can be used.

Gasoline: Two 2,500 gallon tankers would be better than one of 5,000 gallons. The gas can racks are an aboslute necessity. Before going into combat in war they could be dismounted easily.

Medical: The present method is inadequate for a Squadron on the type of work done in these maneuvers. Distances are too great and operation in enemy territory would lose ambulances. They are one more piece of equipment to conceal. Personnel should be given an intensive course in first aid and the Air Corps type first aid kit should be a part of the equipment of each car. A person wounded or injured can be cared for by his mates and left by the road or evacuated when the car can come in. Working adjacent to a Corps the personnel could be evacuated directly by the nearest friendly troops equipped with an ambulance or other transportation.

The state of health of the command was excellent. There were no medical evacuations and few treatments for illness.

Clothing: Warm, Armored Force type clothing for winter is desirable. The present cavalry issue is insufficient.

Equipment: Each scout car or half track should be equipped with a winch. It is a time saver and often the only means of getting vehicles across a ford. The 6 x 6 can out-perform the scout car in rough going. A scout car on a 6 x 6 chassis may be feasible. The half tracks observed leave much to be desired as reconnaissance vehicles.

NONCOM QUIZ

In view of the fact that the Noncommissioned Officers' Course at The Cavalry School has been temporarily discontinued, the contributor to the "Noncom Quiz," for this issue of The CAVALRY JOURNAL, feeling that the regular readers of the column may be interested in comparing their individual ability as "solvers" with that of their more fortunate contemporaries who were members of the last NCO Class to graduate, has substituted in full the written quiz given to this class on November 22, 1941, which pertained to some of the theoretical instruction on defense.

An analysis of the results of grading the papers of the 95 students to whom this quiz was recently given reveals:

16 Solutions were graded at 90% or better as follows:

1 Solution graded 100%
2 Solutions graded 99%
3 Solutions graded 96%
1 Solution graded 95%
3 Solutions graded 94%
1 Solution graded 93%
1 Solution graded 92%
4 Solutions graded 90%

15 Solutions were graded between 75% and 80%.

15 Solutions were graded as Unsatisfactory, or less than 75%.

The lowest grade awarded was 60%.

15 men failed to answer question No. 3 correctly
6 men failed to answer question No. 4 correctly
11 men failed to answer question No. 5 correctly
15 men failed to answer question No. 6 correctly
45 men failed to answer question No. 7 correctly
21 men failed to answer question No. 8 correctly
8 men failed to answer question No. 9 correctly
16 men received no cut on question No. 1
22 men received no cut on question No. 2

Only 2 men received no cut on question No. 10, which was weighted at 16 of the possible 100 points to be made on the quiz, and only 31 were cut less than 5 points, (i.e., made 75% on this particular question).

The preceding analysis may be of interest as a basis for comparison should you decide to determine your own "I.Q." for the test. More than half the class completed their solutions during the first half hour of the one hour and fifty minutes allowed. Nine students of the 95 used the entire period.

	Paragraphs
SECTION I. Questions	1-10
II. Solutions and Comments	1-10

SECTION I
QUESTIONS

1. In the course of a conversation with several new selectees in your own organization, after your return from The Cavalry School, the question was raised as to what the *general object* of "defensive combat" is. You have answered that: *"Briefly, the general object of defensive combat is either to gain time or to economize forces."* Your answer brought forth *the following additional questions:*

a. What is the purpose of gaining time?

b. How can you economize forces by resorting to defensive combat?

How would you *briefly* answer each of these questions? (Use space below for answers.)

a.

b.

Value—10.

2. You have been taught that Cavalry in defensive combat, *when required to defend in position,* operates and fights *the same as Infantry (within the scope of its powers and limitations).*

Answer the following questions that pertain to some of the "powers and limitations" noted in parenthesis in foregoing statement.

a. Based on combat power will corresponding *Cavalry units* (i.e., such as battalions and squadrons; companies and troops, and platoons) usually be organized on a *broader* or *narrower* front than Infantry units?

ANSWER (One word is sufficient):

b. What piece of essential individual equipment does the Infantry soldier have (and the Cavalry soldier does not have), that is immediately available, for providing himself protection in organizing a defensive position?

ANSWER:

c. What useful defensive weapon is found in the Infantry rifle platoon that does not exist in the Cavalry rifle platoon?

ANSWER:

d. How many light machine guns are usually available to the Cavalry rifle platoon in organizing a front line platoon defense area?

ANSWER:

e. Where do these light machine guns come from?
ANSWER:

f. Are they usually "attached" to your platoon or "supporting" it?
ANSWER:

g. If they are "attached," do they operate *directly* under your command as platoon leader; under the LMG platoon leader or the troop commander?
ANSWER (State one only):

h. How many and what caliber mortars are there in the Cavalry Regiment (Horse), and in what unit are they found?
ANSWER:

i. Under the new (tentative) organization of the Troop in which these mortars are located, are they transported in pack or by motor?
ANSWER:

j. Is the 81-mm. squad armed with any special purpose weapon for AA defense?
ANSWER (Yes or No): . . . . . .

k. If you answered "j" in the *affirmative, what type weapon is provided* and *will it add to the "combat strength"* of your front line (rifle) platoon defense area if this mortar squad is "attached" to your platoon *after* emplacement of the mortar?
ANSWER:

l. Where does the Cavalry rifle troop secure tools for clearing fields of fire and digging fox holes?
ANSWER:

m. What "close-in" individual defense weapon does *every soldier* in a Cavalry rifle platoon have that *some* soldiers in an Infantry rifle platoon do not have.
ANSWER:

n. What individual weapon do *some* of the soldiers in the Infantry rifle platoon have, which is useful for "close-in" personal defense, and which none of the soldiers in the Cavalry rifle platoon are equipped with?
ANSWER:

Value—14.

3. The following statement appears in FM 101-5:
"No matter what type of terrain and no matter what the tactical situation, terrain can always be evaluated in terms of the following five factors:

Observation.
Fields of fire.
Concealment and cover.
Obstacles.
Communications."

You are in command of a dismounted rifle platoon, and are now engaged in making a *detailed reconnaissance* of an assigned defense area just prior to forming your final plan for occupying it with your platoon. Which of the above five factors do you consider first as being the most essential?
ANSWER:

Value—10.

4. You have just completed explaining to some selectee replacements, recently assigned to your platoon, the difference between the terms *cover* and *concealment*. If your explanation has been correct and understood by them, *how should they answer the following questions:*

NOTE: Write *"Yes"* or *"No"* in the space provided after each question.

a. Does "concealment" always include protection from fire? . . . . . .

b. Is it possible for individuals in a squad to have *"concealment"* without having "cover"? . . . . . .

c. Can led horses have cover and yet be exposed to observation from the air? . . . . . .

d. Is it possible to place either animals or men in position which have both *"cover"* from ground fire and *"concealment"* from both ground and air observation? . . . . . .

Value—12.

5. An *ideal field of fire* for Infantry, or Cavalry, has been defined as an open stretch of ground in which the enemy can be seen and in which he has no protection from fire as far as the limits of effective range of the Infantry and Cavalry weapons. Such *fields of fire, though sought for by both attacking and defending troops, are seldom found.*

Which does the presence or absence of good fields of fire have the greater influence on, the successful conduct of *defensive* or *offensive* operations?

NOTE: Answer by stating *either one* or the *other,* i.e., "defensive" or "offensive."
ANSWER:

Value—5.

6. *a.* Is the following statement correct? (Answer Yes or No.)
"As a general rule long gentle slopes afford better conditions for *defense* than do abrupt elevations."
ANSWER: . . . . . .

b. What type of action are positions along commanding heights especially suited for?

ANSWER:

Value—6.

7. *a.* What is the maximum "front" that *a troop* operating as part of a Squadron is normally assigned to occupy in defending *in position*?

ANSWER: ..... Yards.

b. What is the maximum "front" it will normally be required to defend in *delaying action* when deployed with "extended frontage"?

ANSWER: ..... Yards.

c. How will a troop deployed as in *"a."* adjust itself to deploy as in *"b." so far as the maximum area physically occupied by its platoons* is concerned? Will the adjustment be made by:

(1) Uniformly increasing the area physically occupied by each platoon, or

(2) by increasing the distances between platoon positions and covering these intervals by fire.

ANSWER by *underlining* whichever method, i.e., (1) or (2), you consider best.

d. What is the maximum depth of a troop defense area?

ANSWER: ..... Yards.

Value—12.

8. A commander of a front line platoon defense area should give first thought to locating his *rifle squads* (or half squads), so they can:

(1) Protect machine guns, antitank guns or mortars located within or near the platoon defense area.

(2) Fire at long range targets as soon as they appear.

(3) Place protective bands of fire in front of the platoons on the right and left.

(4) Cover with fire all avenues of approach to the position.

ANSWER: ..... (Insert the *two* numbers which apply.)

Value—10.

9. A rifle squad, in a platoon defense area is assigned and organizes a supplementary position to which it will move:

(a) when the primary position is rendered untenable by armed hostile fire, or

(b) when it becomes necessary in order to defend the platoon position against attack from the rear or flank.

ANSWER by *underlining* whichever reason, i.e., (a) or (b), you consider to be correct.

Value—5.

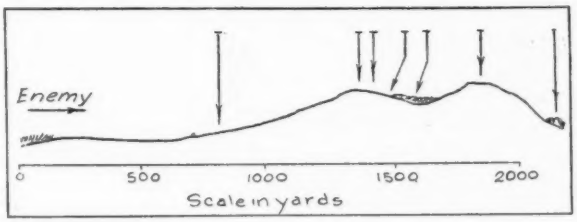
10. *Considering only the six locations* indicated by arrows on the terrain profile below, *identify by placing numbers above any or all* of the arrows, thus, (3), which of the locations you would use for the following:

a. In a *defense over a long period* of time.

(1) MLR.
(2) Led horses.
(3) Forward HMG's.
(4) 81-mm. mortars.

b. In a *delaying position.*

(5) MLR.
(6) Led horses.
(7) HMG's.
(8) 81-mm. mortars.



Value—16.

NONCOM QUIZ

SECTION II

SOLUTION AND COMMENT SHEET

1. *a.* Any answer which contains the thought that by "gaining time" more favorable conditions may arise for undertaking the offensive later, is a satisfactory answer.

b. By resorting to the defensive in one locality you may be able to concentrate superior forces for a decision elsewhere. (See Par. 597, FM 100-5.)

2. *a. Broader.* Due to organization and characteristics, cavalry units usually occupy comparatively broader fronts with less depth than do corresponding Infantry units. (See Par. 73 *c*, FM 2-15.)

b. The intrenching tool. It is an essential article of equipment of the Infantry soldier. It is important in attack as well as in defense in order to hold ground without excessive casualties during interruptions of the advance.

c. The automatic rifle. Two of these guns, on bipod mounts, exist organically in each Infantry rifle platoon.

d. Two light machine guns are usually available to

the Cavalry rifle platoon in organizing a front line platoon defense area.

e. The light machine guns come *from the light-machine-gun platoon* of *the rifle troop to which the platoon belongs.*

f. They are usually attached. In some cases they may be *initially* emplaced by the LMG platoon leader or the troop commander and subsequently "attached."

g. When the LMG's are "attached" to your rifle platoon they operate *directly under your command.*

h. There are four 81-mm. mortars in the mortar platoon of the Special Weapons Troop.

i. By motor. In the new tentative organization of the Special Weapons Troop, *the mortar and the squad are transported in three ¼-ton trucks.*

j. Yes.

k. One truck of each squad of the Mortar Platoon is armed with *a MG, cal. .50 AA on pedestal mount.* Unless the ¼-ton truck on which this AA machine gun is mounted is camouflaged and *parked in the platoon defense* area (which is unlikely to be the case) it will *not* add to the combat strength of *your platoon defense area.* It does provide protection to the mortar squad against low-flying aircraft attack while the squad is mounted.

l. Tools for use of the rifle troop in clearing fields of fire and digging fox holes *are furnished by the Engineers* when they are available. An Engineer Squadron is an organic unit of the Cavalry Division. Elements of this Engineer Squadron may or may not be "attached" to a Cavalry Regiment depending on the situation. They may simply drop tools at a designated location.

(*NOTE:* Any answer indicating that the tools are furnished by the Engineer Squadron of the Cavalry Division or unit to which the troop is attached is a satisfactory answer.)

m. The automatic pistol, cal. .45.

n. In the Infantry rifle platoon every soldier *not* armed with a pistol is equipped with a *bayonet.* If a *hand grenade* is indicated as an answer to this question it will be considered satisfactory. Actually each Infantry Company carries 102 grenades (approximately one per two men), *in the weapons carriers of the company* (they are *not* available to the soldier until issued).

3. *Fields of fire are essential to the defense.* (Par. 2 *c*, App. 2, FM 101-5.) Observation, cover, concealment and obstacles, no matter how excellent, in this situation, will be of little help to you in conducting the defense unless you have good fields of fire at mid and close range.

4. *a. No.* Concealment from view, both from the air and from the ground, may afford "cover" only while the enemy does not know that the natural or artificial obstacle is occupied. (See Par. 2 *c*, App. II, FM 101-5.)

b. Yes.

c. Yes.

d. Yes.

5. *Defensive.* The presence or absence of good fields of fire (for Infantry weapons), generally has a greater influence on the successful conduct of defensive operations than it does on offensive operations.

6. *a. Yes.* (Par. 605, FM 100-5.)

b. Positions along commanding heights are especially suited for *delaying action.*

7. *a. 600 Yards.* In the defensive organization of a battle position the Cavalry rifle troop is assigned an area which may vary between *300 and 600 yards* in width. (See Par 75 *c* (4), FM 2-15.)

b. The maximum front that a Cavalry rifle troop will normally defend on is *1,500 yards.* A frontage of such great width might be assigned to a troop employed on a mission of delaying action as part of a larger force. (See Par. 373 *d*, FM 2-15.)

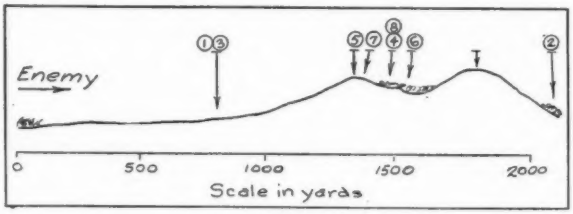
c. Normally the increased frontage will be covered by increasing the distance of the intervals *between* platoon positions, and *not* by increasing the maximum area normally occupied by each platoon, which is 150 yards. (See Stencil T-201.)

d. 400 Yards. (See Par. 75 *c* (4), FM 2-15.)

8. *(1)* and *(4).*

9. (b). Movement to a supplementary position is for the purpose of undertaking new fire missions that cannot be executed from the primary position. Movement to an alternate position is to prevent casualties and still continue with the same fire missions.

10.



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The 11th Goes Home

--A Diary of Events!

IF ever an enemy nation wants to catch a cavalry unit with its pretty woolen breeches wrinkled right down around their ankles, the thing for them to do is start shooting the day before the unit is scheduled to change its base.

We were ordered to move from Camp Seeley to our new home, Camp Lockett, on December 9th.

December 7th (remember the date?) found our camp half dismantled. Practically whatever could be moved to Camp Lockett by truck had been sent up the hill already.

It was a sunny, cheerful Sunday after a week of bad weather, and the usual number of officers and enlisted men were on 1-day passes to El Centro and San Diego, relaxing and having fun after the busy week of packing.

The gentle, peace-loving Mr. Kurusu was still benignly pushing his gilded olive branch into chary Washington hands, and *Life* magazine was graphically illustrating why it was a physical, scientific, economic and religious impossibility for Japan to so much as point a B.B. gun in the direction of Uncle Sam. It was a day in which to yawn, to do light tasks between naps, to lie in the sun, to sleep. Certainly, it was not the day in which to get news of war.

At 12:37 (the sun was lazily painting bright Mexican colors on Signal Mountain with a big, sloppy brush) the 11th Naval District advised us by radio of the ruckus at Pearl Harbor.

Eeeeeeeeeeoooooooooow, went the fire sirens at El Centro, signalling all our men to report back to camp. The local radio stations gave the same orders. So did the highway patrols. In less time than it takes to say "Japs over Honolulu," the camp was functioning on a wartime basis. Scout cars were whipped into formation, machine guns mounted, men were in uniform, armed and ready for duty. Hurrying up and down troop streets, past officers' and enlisted men's quarters, we picked up fragments from the radio news commentators who (either because they themselves had received misinformation, or because they had received none and resorted to creating their news) variously reported that (1) Hawaii and the Philippines were totally destroyed and that the victorious Nipponese fleet and air armada were pointing their bloody prows toward the Golden Gate, that (2) only one Japanese gentleman had run amok in Hawaii and that the whole exaggerated affair had already been covered with a tailor made, "Oh, so sorrow, excusing at us, please?" that (3) hundreds of Japanese and Axis bombers, long rumored to be in Mexico, had received the word to soar from Sonora to San Francisco, dropping their Blitzkriegettes as they flew, and that (4) various Pacific coast cities had already received their share of gas bombing.

As if to stimulate us into acclimating ourselves from a peacetime to a wartime frame of mind, our C.O. (Lieutenant Colonel Frederick Herr at the time, since Colonel H. M. Rayner was convalescing in a Santa Barbara hospital) was phoned at 1:00 PM by the Fourth Army who ordered that a certain defense plan, one of many previously created for such an emergency, be put into effect. Let's call it Defense Plan No. 0, since its name can't be mentioned here.

In accordance with Defense Plan No. 0, three scout cars bristling with machine guns were dispatched to Camp Lockett, Lieutenant F. I. Putnam in command. We'd seen these scout cars leave camp before, but this was a new sight. It wasn't new just because we weren't accustomed to seeing the cartridge belts grimly in place, and full of shiny bullets all seemingly eager to be dispatched on their destructive armor-piercing missions. It was a new sight more because, as the roll was called, the men mounted the cars, and the cars went into gear and sped out, we realized, swiftly and with surprise, that we could no longer regard these men as draftees, as civilian dudes in the army ranch, but that these were soldiers, trained, and ready to kill or be killed in the line of their duty.

The rest of that Sunday passed swiftly. Hourly reports of enlisted men and officer strength were made by troops to the Adjutant. Maps containing areas that we were defending according to Defense Plan No. 0, were rushed back from Camp Lockett. Other maps were quickly made on improvised drafting tables and rushed to other army headquarters, as asked for.

Near chow time officials of the local railroad phoned and asked that we send protection for certain strategically located tunnels, bridges, gorges. Squads were sent to each point. The radio had whipped everyone into a fine frenzy of sabotage-suspicions. The guards at the Mexican border, 12 miles away had been doubled, and redoubled.

One does not give away secrets when one says that this area is generously pock-marked by dams, canals, power stations. That's why Defense Plan 0 had been created in the good old lazy days of peace. That's why we kept arming and sending out squad after squad to these vital spots. That's why midnight found almost every important dam, highway bridge, railroad bridge in the area playing silent host to our patrols. The day had been slow in getting under way, but its third act curtain certainly came down with a bang!

Would we go to Lockett or, now that we were in the war, stay at Seeley? That's the question we asked one another Monday morning. Although the radio news commentators had localized the fighting to the Islands, there was still persistent reports of Japanese plane carriers right off the coast, Japanese bombers overhead. A phone call from higher headquarters settled the question. We were told to continue with our plans.

That was our last day in Seeley, a place we had carved from the desert ourselves. We had come to it last November, found nothing but a vast plain of adobe mud made pasty by the rain. We had built mess halls, erected tent frames, carved a rifle range out of an old river bed, converted a pond into a horse swimming place, installed a filtering system, a swimming pool. We had endured a winter of rain and a summer of intense heat. We had done a lot of living in the year we'd spent at Camp Seeley.

Appropriately enough, it rained that last Monday. Canvas came off the tent frames, was folded and sent on its way. Barracks bags, beds, mattresses assumed mountainous piles in troop streets. Tents were stripped of everything except what was needed for one more night.

The war did not touch us that day. Some squads on patrol duty were relieved. Others were sent hot meals. The big business on hand was the move to Camp Lockett.

Late in the afternoon (the sun had come out again for a few moments) we received a good sized report from a higher headquarters. The news at the moment was that a certain coastal section of Mexico not too far from us was believed to be the center of Japanese activity. There were some unauthenticated but nonetheless vivid reports of small boats landing in that vicinity.

There was a slight rain that night. Just a little misty drizzle as if the elements were playing cat-and-mouse, saying, "This is just a taste of what I can do, but wait until I give you a really hard poke."

Tuesday was moving day. We kept putting our raincoats on and taking them off as the rain took a poke at us and ducked, poked and ducked. At 7:15 AM we were phoned by the 11th Cavalry's 2d Squadron (they had all moved into Camp Lockett several weeks ago) whose C.O., Lieutenant Colonel A. W. Howard, uneasily advised us that a large flight of unidentified planes were flying over their camp.

At 10:45 AM we were all in the saddle, waiting to hear Colonel Herr's order "Forward—Ho!" Colonel Herr was passing the last telephone in the camp—at the guard house. It rang. It was the Signal Officer at Fort Rosecrans telling us the latest about the enemy carriers right off the coast, and about the enemy planes that had circled over San Pedro and Long Beach last night.

With many a repeated anxious look skyward, the command group clattered past the Camp Seeley gate at 11:05 AM. It did not rain that day. Those of us that wore raincoats took them off and secured them to our saddle bags as we rode. Those of us that wore field jackets did ditto. And those of us that still wore the heavy woolen undershirts we had slept in, scratched, and wished we hadn't. It was a hot ride.

The march that Tuesday was all on the highway through desert. Two thirty PM was the time we were scheduled to arrive in Skull Gorge.* We hit it on the split second.

We had bivouacked here several times before. Picket lines went up quickly. Horses were watered. Food was served.

Night, with an occasional grumbling accompaniment of thunder, reported for duty quickly. It was dark by 5:30. By 7:00 most of the men were under their pup tents, or in their sleeping blankets.

It was not a good night for sleep. A near-by freight train switch-off, dormant since time immemorial, sprang into noisy action, banging and crashing its cars' couplings. Occasionally a plane or number of planes, droned overhead, unseen but throbbing with the possibilities of menace. It rained. Not the gentle misty drizzle of the night before, but a good solid, salt-and-pepper stinging rain that woke us up, marooned our tents and sleeping bags and made things miserable, in a steady, industrious style.

Reveille was at 5:00 that Wednesday (December 10th, if you've lost count). We laced boots in the dark and rain. In the dark and rain we ate, saddled up and moved on toward Moose Mesa.*

The mist lay its ghostly shroud on the desert. Little scrub mesquite bushes looked like puffy snowballs that morning. And the snaky Ocatillo cacti bobbed into view and disappeared behind curtains of mist like gibbering witches in macabre pirouettes. There was no wind. One could see no farther than the back of the horse in front of him. From behind and in front echoed the steady rhythmic clickity click of the horses' hoofs as we took to the highway.

By 9:00 AM the mist had lifted, the sun was slugging his way through the clouds, and we were watering our horses at Sulpher Geyser.* A motorcycle messenger brought the C.O. a message from Camp Lockett's C.O., "Higher Headquarters reasonably sure there are 11 enemy aircraft carriers right off the coast here."

Later confirmation reduced the number to two enemy carriers. But, two or eleven, it made our position (mounted men on the open road) an easy target for the bombers from the land of the rising sun. We forsook the highway for less travelled paths for the rest of the trip, lengthening the distance appreciably.

At 10:40 AM we reached Moose Mesa. Last July the trip from Skull Gorge to Moose Mesa was considered a tough one, and we had rested at Moose Mesa, spent the night there. This time we paused only to feed our horses, and eat our lunches.

A little before 12:00 another motorcycle messenger

*Fictitious.

brought us another little tid-bit of information, "Japanese 'farmers' around Tia Juana are congregating at location as yet unrevealed."

Our raincoats were on again by the time we watered at Star Valley.* Lost Valley,* our scheduled bivouac area, was reached by 1:30 PM, after a ride over a snake-like road that included desert, gorge, valley, narrow bridges, jumps, streams, and narrow passes in its varied itinerary.

Rain. And more rain. We fed our horses, rubbed them well, and (for the first time in a year) attached their covers. Then, in punishing rain, stood in the chow line to take care of the inner man.

We had finished preparations for the night's bivouac when the rain, evidently deciding it had played around long enough, and that it was now or never, let loose with both barrels. It came down in sheets, oversize, double bed sheets. Horses neighed in terror and drenched men talked about taking off their boots and swimming out of the flooded valley.

One could not sleep in such a rain—it would be better to keep moving. At 5:05 we broke camp and faced the driving rain, toward Camp Lockett.

It was the kind of a ride one could not film or forget. It was the kind of an experience one would never trade for a million dollars—or repeat again for a million dollars. It was bitter cold. The terrain was mountainous, uncertain, full of holes, scrub oak, mazanita, cacti, unexpected right angle curves banked by barbed wire.

*Fictitious.

There were times when we splashed forward ankle deep in flooded valley bottoms. And twice, when we reached mountains' summits, we plodded along in the clouds, like the characters in "Lost Horizon" seeking Shangri-La. The rain had a stingy, snowy quality up there, and the heavy rolling movement of the spongy mist made us wonder if it weren't all a dream.

Shoes, pockets, saddle bags became filled with cold water. Saddles sloshed and gurgled with their riders' weight. Mounts had to be pulled along when they were led, squeezed unrelentingly when walked, kicked when trotted.

At ten o'clock the rain, as if having given its best, abated, slowed up to a drizzle, died. By 10:30 PM just as the first column of the Command Group led their indignant horses into Camp Lockett's stables one star came out and, by the time the last of the column was in, all the stars were out.

The camp was in blackout. Wet, frightened horses were slowly, inch by inch, led into strange, dark stables, tied, unbridled, unsaddled, and rubbed.

We had completed a three-day march in two days. We had been on the way 16½ hours since reveille. We were wet, tired, sore, but we were not unhappy. We had come home. For the first time since we left the Presidio of Monterey, November of last year, we would have hot showers in a really enclosed room. We would eat from real chinaware tomorrow, but, best of all, tonight we would sleep in real beds under a real roof. It was good to come home.

"Silence The Agitator"

Pointing to the death penalty as a requisite of military organization, he (President Lincoln) inquired: "Must I shoot a simple-minded soldier boy who deserts, while I must not touch a hair of a wily agitator who induces him to desert? This is none the less injurious when effected by getting a father, or brother, or friend into a public meeting, and there working upon his feelings till he is persuaded to write the soldier boy that he is fighting in a bad cause, for a wicked administration of a contemptible government, too weak to arrest and punish him if he shall desert. I think that, in such a case, to silence the agitator and save the boy is not only constitutional, but withal a great mercy."—*Abraham Lincoln: The War Years,* by Carl Sandburg.

THE SALINA FLOOD

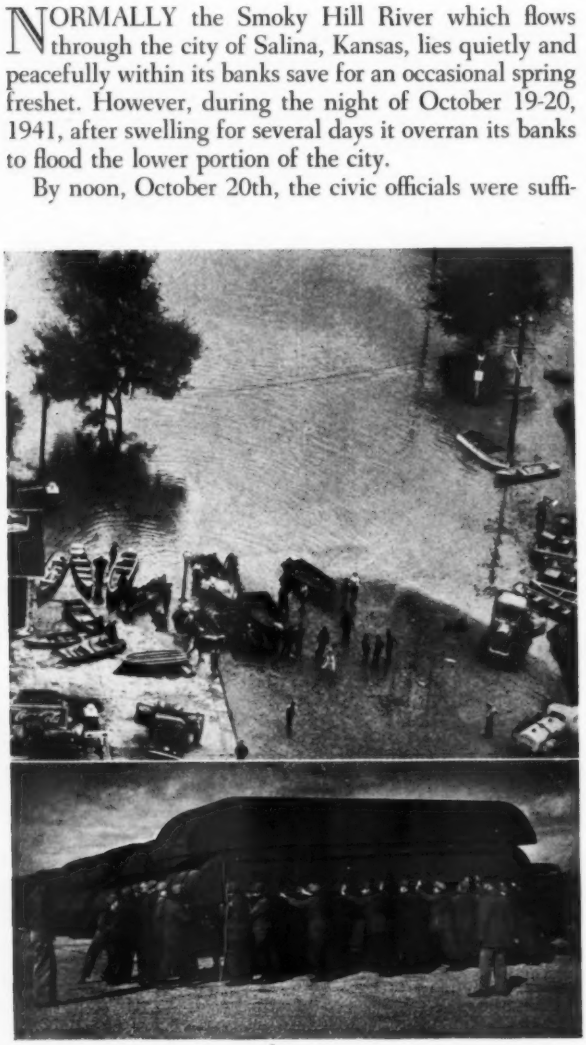
By Lieutenant George E. Roush, Signal Corps

EDITOR'S NOTE: It is believed that this will be of interest to all Military Posts as the Army is often called for such duty.

* * *

NORMALLY the Smoky Hill River which flows through the city of Salina, Kansas, lies quietly and peacefully within its banks save for an occasional spring freshet. However, during the night of October 19-20, 1941, after swelling for several days it overran its banks to flood the lower portion of the city.

By noon, October 20th, the civic officials were sufficiently alarmed to request aid from the Second Cavalry Division located at Camp Funston, 65 miles distant.



***Top*—Emergency Dock, Iron Avenue, the principal north-south thoroughfare in Salina, served as an emergency dock for flood relief boats serving the city's inundated eastern section. Some of the boats seen here were sent to the flood area with an engineer company from Camp Funston, and several of the soldiers taking part in the rescue work appear in the photograph. The camera is pointed toward the east, where a large part of the town was under water from the flooded Smoky Hill River. *Bottom*—74th Engineer Light Ponton Company loading pontons for trip to the Salina flood.**

Mayor Morganstern of Salina first asked for radio aid preferably mounted in vehicles. Major Mason H. Lucas, Division G-2, was immediately dispatched to Salina to look the situation over and Major General John Millikin, Division Commander, also dispatched 4 radio equipped scout cars under command of Lieutenant George E. Roush, in addition to 2 SCR-193 and 2 SCR-145 radios installed in the scout cars, 3 SCR-194 radios (walkie-talkie) were taken as their use in boats was anticipated. The latter radios were furnished by the Division Artillery.

Upon arriving at Salina, Major Lucas found no central control of aid and Mayor Morganstern was very anxious that the Major take over the relief. In line with Army policy, the Major declined to take over direct control but recommended that a civilian director be found under whom the Army personnel would be eager to assist in any way possible. The principle need at that time was boats. Major Lucas contacted Major Thomas D. Roberts, Division G-3, and a detachment of thirty men from the 74th Engineer Light Ponton Company, attached to the Second Cavalry Division, were on their way in short order.

Major Lucas and the Signal Detachment were able to go directly to Salina via US route 40—the Engineers coming later, found it necessary to detour to the north as the rising waters closed the highway.

Central control of relief, so important to any such mission was finally taken over by the Red Cross Emergency chairman and coördinated work to evacuate flooded areas was begun.

Some evacuation was already being done by private craft. Basing operations in Memorial Hall, local radio operators had set up communications between Memorial Hall and Iron Street Bridge.

Communication was set up between the base of operations at Iron Street bridge and Camp Funston through the help of the 1st Observation Squadron located at Marshall Field. An SCR-193 Radio Set was used as Net Control Station, the other two sets being used in evacuating areas not deeply covered by water.

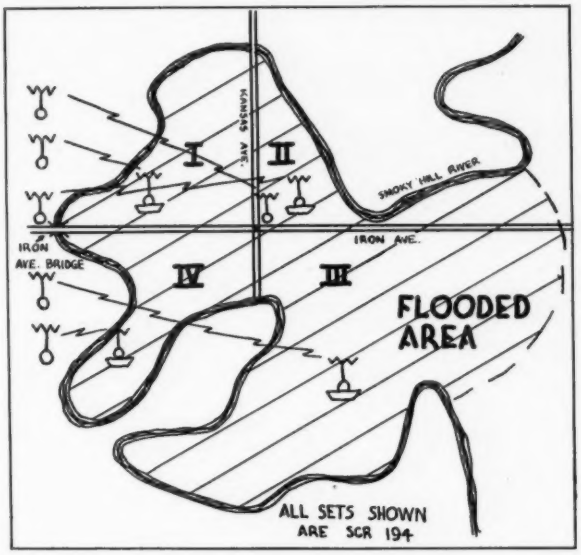
Upon arrival of elements of the 74th Light Ponton Company, a "transfer" dock (at first, a high wagon; later a ponton boat) was placed at the intersection of Iron and Kansas Avenues. Communication between this dock and base was afforded by two SCR-194 sets. The method of operations was as follows: All telephone calls for relief were directed to Memorial Hall and from there to the Iron Street Bridge. The call was

then radioed from the bridge to the "transfer" dock where the control dispatcher was located. He dispatched boats from the dock or radioed boats already in the area to make the rescue. Rescued persons were brought to the dock and unloaded to await further transportation. After sufficient number of persons had been gathered in on the dock to make a trip to the base practicable, they were taken off by a motorized ponton and brought to the Iron .Street Bridge. After being disembarked, they were checked in at the desk by the ***Red Cross*** before being taken to Memorial Hall. The major part of the evacuation was carried on in this manner.

The river's rising, however, led to a change in method due to swift cross-currents set up at street intersections, endangering the small assault boats. Also, the current in and near the river proper became so swift that the assault boats could not safely navigate and the larger pontons had to be used. In order to effectively utilize these boats and to speed up the evacuation, for it seemed imminent that high speed rescuing might be necessary at any time, a slightly more elaborate method was developed.

Additional SCR-194 sets were requested from Camp Funston by radio and eight operators from the 16th Field Artillery Battalion with six SCR-194 sets soon appeared. The area was divided into 4 zones, as shown in sketch.

Each zone was evacuated by a light ponton boat (where swift water was encountered) or several assault boats. Each zone had contact to the base by one or more SCR-194 sets in boats. In addition to contact by means of the radio on the dock, a local guide indicated the proper radio set to be used at the base (SCR-194 sets do not lend themselves readily to netting). In this manner a boat or a boat group could remain in the zone until its capacity was filled before returning to the dock and the motorized ponton wending between base and dock could be more efficiently employed if it was also equipped with a set.



This latter plan is a method that lends itself to use in almost any similar situation.

The actual operation of evacuating this area was carried out under the most trying conditions. The weather was cold, wet and miserable but the men worked cheerfully and hard. Morale was at all times high. Coöperation between citizens and soldiers was very much in evidence.

One of the outstanding difficulties of any such operations is the over abundance of assistance. Local home guard units, lodges and other civic groups while trying to be helpful in many instances, do more to hinder than assist. Important, however, is the use of local guides both for radio and boat work that neither go misdirected. Central control of all army personnel is also important that the work is not split up in unnecessary missions that soldiers will attempt such as delivering groceries or removing furniture when actual life-saving work is to be done.

Morale Begins in the Messhall!

Manual of Mess Management

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In this one volume a troop commander or mess officer, a mess sergeant or a cook, can find all the information necessary for running an Army mess of any size. It combines most of the material in the six main official books that apply to messing, plus additional matter for those who help in any way in the feeding of the American soldier. 346 Pages.

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The Cavalry Journal

1719 K Street, N.W. Washington, D. C.

Book Reviews

Attention, Librarians!

MODERN WAR—Its Economic and Social Aspects. A Bibliography, by Albert T. Lauterbach, Assistant Professor of Economics in the University of Denver, in collaboration with Robert A. Kann and Deborah A. Hubbard, Bibliographical and Research Assistants at the Institute for Advanced Study, Princeton, New Jersey.

It is not our policy to include reference in our Book Review Section to mimeographed documents. In this case, however, exception is made due to the importance of this subject.

The references are grouped under the headings of General, 17 pages; The United States, 7 pages; Germany, 6 pages; Great Britain and the Empire, 6 Pages; France, 2 pages; Italy, 3 pages; Japan and the Far East, 3 pages; and The Soviet Union, 2 pages.

Extra copies if this valuable bibliography can be obtained upon request to *The Institute for Advanced Study, Princeton, New Jersey.* If quantities are required a small charge will be made to cover costs.

* * *

THE STATE DEFENSE FORCE MANUAL. The Military Service Publishing Company, Harrisburg, Pa. 559 Pages. Well illustrated. $1.00.

This manual contains just about everything necessary for infantry units of the State Defense Force. It would be highly valuable, also, for mounted units if used in conjunction with the Cavalry Field Manuals issued by the Government Printing Office and The Cavalry School Departmental texts (all obtainable through this office). See pages 108 and 109.

* * *

THE DELAWARE CONTINENTALS 1776-1783. By Christopher L. Ward. The Historical Society of Delaware, Wilmington, Delaware, 1941. 620 Pages. $3.75.

"Suffering every extreme of cold and heat, hunger, thirst and fatigue in its seven years of service, it marched thousands of miles, bivouacked often on the bare ground in rain and snow, yet always went into battle with undaunted courage and spirit"—the Spirit of '76.

This history of the Delaware troops is a penetrating analysis of almost all of the important campaigns of the war of the American Revolution in a theater extending from New York to South Carolina.

The text is buttressed by appendices of source material which strengthens it both in authenticity and in local color.

There are several interesting incidental accounts of cavalry action.

INDIAN FIGHTING ARMY. By Fairfax Downey. Charles Scribner's Sons, New York. 1941. Profusely illustrated. 329 pages. $3.50.

Here is one book that is well worth the price before one begins to read it. It contains forty-six reproductions of paintings and drawings by Frederic Remington, Charles Schreyvogel, R. F. Zogbaum, and others. The pages ring with heroic names—Sherman, Sheridan, Miles, Custer, Crook, and such great Indian captains as Chief Joseph of the Nez Perces, Geronimo of the Apaches, and Crazy Horse of the Sioux.

Mr. Downey has here for the first time gathered together a mass of facts and presented them in chronological and connected order (not all of them victories) to make an epic narrative of bravery and hardihood, inspirational and thrilling. It is the story of a magnificent army that was neglected, forgotten, often maligned and until this volume, as a whole, unsung—the Great West of America in the closing years of the Nineteenth Century, with cavalry playing the predominant rôle!

Mr. Downey traces the history of the Indian-Fighting Army from Fort Laramie in Montana in 1865 to the mountain fortresses of the fierce Apaches in the painted buttes of Arizona, and the sudden sanguinary raids of the Kiowas and Comanches in Texas, concluding with the threatened revolts by the Piutes of Colorado in 1915.

Every cavalryman in particular will want a copy of this literary, historical and pictorial gem.

✦ ✦ ✦

AUTOMATIC ARMS—Their History, Development and Use. By Melvin M. Johnson, Jr. and Charles T. Haven. William Morrow & Co., New York, 1941. 150 illustrations. 344 Pages. $4.50.

This book is preëminent in its field. It covers all phases of automatic arms. Divided into sections, it provides easy reference for those readers seeking specific kinds of information: Part I—History and Development; Part II—How They Work; Part III—How to Keep Them Firing; Part IV—How Employed in Combat; Part V—Miscellaneous Considerations, such as accuracy, mechanical work in machine guns for better functioning, design, critique, etc. Appendices include tables of weapons, types and diagrams of the operating parts of many of the automatic arms now in use as well as some of the famous types of the past.

This book is a comprehensive and authoritative treatment of one of the most important factors in the present world conflict—the automatic weapon. It should be in every library.

✦ ✦ ✦

THE HYMNAL, Army and Navy. Edited by Evan L. Bennett, Chaplain, U. S. Army. A. S. Barnes & Co,, New York. 1941. Complete index. 607 pages. $1.50.

This hymnal, with music and special prayers for service – Protestant, Catholic, and Jewish – represents extensive collaboration with chaplains, publishers, and agencies serving the spiritual needs of our men in the Services. It is designed to meet the requirements of the limitations of time, space and funds usually available to service chaplains.

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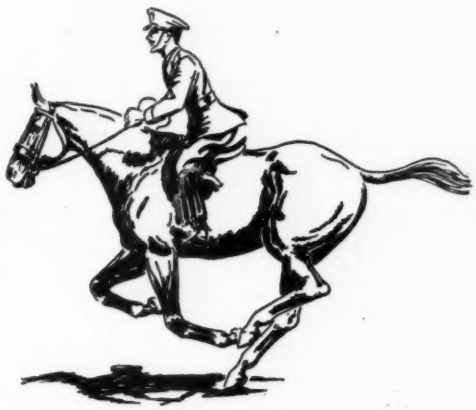

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MANUAL OF MESS MANAGEMENT. The Military Service Publishing Company, Harrisburg, Pa, 1941 (new). 340 Pages. Illustrations and appendices of useful information. $2.00.

A properly managed army mess obviously is one of the greatest aids to health and morale. For years there has been a definite need for a single volume that contains all of the necessary assembled information, not only for the unit commander, the mess officer, the mess sergeant, the cook, but for every man in the organization whose duties affect messing the outfit.

This valuable book is not an official publication, but in our opinion it should be. It is based for the most part on the following official documents:

Technical Manual 10-205, Mess Management
Technical Manual 10-210, Inspection of Subsistence Supplies
Training Manual 2100-151, The Army Baker
Training Manual 2100-152, The Army Cook
Field Manual 8-40, Field Sanitation
Field Manual 21-10, Military Sanitation and First Aid.

In addition to the above publications, the pamphlet, *Notes on Mess Management*, by the Coast Artillery School, and other data based on practical experience have been contributed.

Manual of Mess Management is complete and comprehensive. For greater mess efficiency, several copies should be made available immediately to every CCC, Military and Naval Mess.

* * *

SWORD PLAY. By Scott D. Breckinridge and Scott D. Breckinridge, Jr. A. S. Barnes & Co., New York. 1941. Illustrated. 100 pages. $1.75.

In this new book, based on the French School of the Foil, the authors present in concise form the basic theory and technique of the Classical School. Supplemental comment upon the duelling sword and saber is included, together with information as to its application of the theory and technique to competition and of the pitfalls that await the unwary.

There are four groups to whom this book will appeal and have special value: "(1) the amateur fencer whose past interest has been in the practice rather than in the theory of the art, but who has been drafted as coach in one of the colleges that has no available professional; (2) the instructor in the Department of Physical Education who, with only a minimum of personal knowledge, is called upon for class instruction; (3) the amateur fencer who has become somewhat vague in his memory of theory, rules, and conventions, but finds that he is to be called upon to act as an official in local fencing matches; and (4) the young fencer who must either give up fencing or find his way as best he may without the advantages of instruction."

Dr. Breckinridge was a member of the West Point Fencing Team, 1902-1903; Intercollegiate Foils Champion, 1903; National Foils Champion, 1906 and 1914; member of the Olympic Team 1912. He was coach at the University of Kentucky from 1937 until his death in 1941. His son and co-author was captain of the University of Kentucky fencing team.

BE A BETTER HORSEMAN. By Captain Vladimir S. Littauer. The Derrydale Press, New York. 230 illustrative photographs, index. 251 Pages. $10.00.

This is not a textbook and then again it is; or perhaps more correctly put, it is something new in textbooks on the subject of equitation.

When the author published *Riding Forward* and *More About Riding Forward* he immediately won acclaim in horse circles for his thorough and comprehensive exposition of the subject. In *Be a Better Horseman* he has included much of his former material but his method of presentation is truly unique. In this instance he has chosen to write a book in conversational form and all of the usual questions an instructor hears during his lessons are answered. In this manner the dryness and monotony common to most textbooks are admirably eliminated.

The excellently posed photographs are so closely connected with the material that in a sense the whole story is but a minute description of the pictures.

This book would be invaluable to civilians who are not familiar with terminology ordinarily found in military textbooks on horsemanship and horsemastership. On the other hand, our mounted services will find it of extreme interest and value. We recommend it!

SIGNPOSTS OF EXPERIENCE. By Major General William J. Snow, U.S.A. Retired. United States Field Artillery Association, Washington, D. C., 1941. Illustrated. 317 Pages. $2.75.

The author, Chief of Field Artillery 1918-1927, needs no introduction to army men. We all know of General Snow's tireless and progressive effort towards the improvement of his arm.

With characteristic clarity General Snow describes in this volume the complex problems that confronted him and the solutions that he reached or sought.

Although General Snow's work, for the most part, is a source book on a phase of our first World War and post-World War military effort, it all has an application to our present situation. His experiences as set forth are replete with lessons, hints and suggestions that are of especial and timely value.

FORTY MILLION HOOFBEATS. By Frank M. Heath, David Turet, New York. 1941. 465 Pages. $3.50.

In this current era of literary sensualism and sensationalism this book is truly refreshing. Writing in a fascinating style the author takes us on a factual 11,356-mile horseback ride with the great horse, *Gypsy Queen*, under saddle. She covered the greatest distance ever recorded of a continuous journey on foot, visiting every state in the Union.

Gypsy Queen "lived off the country" eating whatever feed was available, drinking all kinds of water and putting up with any kind of shelter. She was a great trooper.

The vivid account of the many kindnesses extended the travellers in remote parts of this great continent by all sorts of humble folk will restore to the reader a fresh faith in humanity in these heart-breaking times. Sergeant Heath's day-by-day account of his experiences constitutes a liberal education in Americana.

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Horse Feathers

Dixie?

TROOPER: "Shall we hug and kiss and tell jokes?"
WHOOPER: "Oh, let's not jest now."

Experience is a dead loss if you can't sell it for more than it cost you.

MOTHER: "Remember, daughter, never marry a wild an' woolly an' hard-to-curry cavalryman."
THE WISE CHEEILD: "Gee, Ma, *never?*"

CORPORAL (on the target range): "I told you to take a fine sight. Don't you know what a fine sight is?"
ROOKIE: "Sure, a boat load of corporals sinking." (Then the fun began!)

A poor marksman can be an expert at killing a good thing.

SON: "Dad, they say, 'there is no fool like an old fool.' "
COLONEL: "It is only that he is conspicuous by his rarety, son."

CORPORAL: "Is there any way I can tell whether or not that girl is in love with me?"
SERGEANT: "Sure! If she knows what an ass you are making of yourself over her, then she ain't!!"

Weight Reducer

BEST METHOD: Rotate the head slowly from right to left whenever offered a second helping of chow.

RECRUIT: "How do you lift a mare's hind foot without getting kicked?"
SERGEANT: "Well, lad, first yer just edge up, sorta indifferent. Then gently touch her back, tender-like—and ease yer mit affectionately down her thigh. Savvy?"
RECRUIT: "Steady, Sarg. I mean hoss."

"Lost: A chain of sixty golden minutes, each link set with sixty diamond seconds. No reward offered; it is gone forever."

Confidentially

At PX (5:00 PM): "Here come Mr. and Mrs. C.O., and, believe me, he's got what she takes!"

The way to get a better assignment is to do the one we have *better.*

PRIVATE EXPERIENCE (in store): "Won't you take something off for cash?"
SALES GIRL: "Sir!!??"

Then there was the gal who became popular by changing her brand of cigarettes. She used to *walk a mile* and now she *satisfies.*

CORPORAL: "How can you continue to eat in that *Quick and Dirty?"*
SERGEANT H & M: "Oh, I just take a shot of *Drano* afterwards."

Virtue is learned at mother's knee, but vice at some other joint.

COLONEL: "Did your husband get hurt badly when he was hit by a scout car, Liza?"
LIZA: "Yassah. He suffered from conclusion of the brain."
COLONEL: "You mean concussion of the brain, don't you, Liza?"
LIZA: "No, suh. I mean conclusion. He's daid!"

Black and Blue, Perhaps

POSTMASTER: "How's that son in the cavalry gettin' on, Mrs. Wiggins?"
MRS. W.: "Grand! They just made him color sergeant."
P.M.: "Have they? What color?"

A dud is a shell that fails to explode.
A dud, also, is a trooper who does *explode.*

In these turbulent times it is unwise to believe anything we hear and little of what we see. So don't tell anybody!

War Department Changes

CAVALRY PERSONNEL

(From November 15, 1941 to January 10, 1942)

Captain James P. Abbott, from Ft. Riley, Kans., to off., C. of S., Washington, D. C.

Captain Lawrence J. Alexander, det. IG, Dec. 20, to hq. AC Tech. Tr. Comd., Tulsa, Okla.

Lieutenant Thomas S. Anderson, from Ft. Knox, Ky., to A. C. R. C., Maxwell Field, Ala.

Major Julian M. Andrus, to 2d Interceptor Comd., Ft. Lawton, Washington.

Captain Carroll W. Arford, from Ft. Knox, Ky., December 15, to Off., C. S. O., Washington, D. C.

First Lieutenant Gilbert C. Arnold, from Ft. Bliss, Tex., to San Francisco Port of Embarkation, Ft. Mason, Calif.

Lieutenant Robert W. Arnold, from Brooks Field, Tex., to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Lewis L. Austin, to Hqs. Air Support Comd., Mitchel Field, N. Y.

Captain David D. Babcock, from Ft. Riley, Kans., January 5, to off., C. S. O., Washington, D. C.

Colonel J. A. Baer, G. S. C., will retire April 30, statutory age limit; relieved Governors Island.

Lieutenant Arthur B. Baldwin, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Harold L. Barr, to Air Serv. Comd., Middletown, Pa.

Lieutenant Wm. J. Barter, S. C. Rep. Cen., Ft. Monmouth, N. J.

Lieutenant Irvin L. Basler, to Air Serv. Comd., Middletown, Pa.

Captain Charles R. Bean, from Camp Livingston, La., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

First Lieutenant William F. Beaty, prior orders amended, from 2d Cav. Div., Ft. Riley, Kans.

Lieutenant Perry Benson, to Air Serv. Comd., Middletown, Pa.

Lieutenant Colonel L. S. S. Berry, relieved 7th C. A. S. C., Fort Riley; assigned Hq., 4th C. A., Atlanta.

Lieutenant Frank R. Bertero, to 59th Obs. Sq., Fort Dix, N. J.

Major Charles P. Bixel, from Ft. Oglethorpe, Ga., to Off., C. of Cav., Washington, D. C.

Lieutenant Colonel Francis T. Bonsteel, from Ft. Knox, Ky., December 27, to hq., 2d Corps Area, Governors Island, N. Y.

Lieutenant Thos. J. Brett, to 126th Obs. Sq., Fort Dix, N. J.

Colonel John K. Brown, retirement revoked; prior orders amended, Ft. Bliss, Tex., to 8th C. A. S. C., that station.

Major John V. Brown, from Ft. Jackson, S. C., to Army Air Forces, Washington, D. C.

Captain Oral J. Brown, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Dickson D. Bruce, to Air Serv. Comd., Sacramento, Calif.

Major W. M. Burgess, relieved 5th Cav., Fort Bliss; assigned Hq., Army Air Forces, Washington, D. C.

Captain Louis Buttner, prior orders amended, December 20, 1941, instead of December 10, 1941.

Lieutenant Colonel James N. Caperton, Ft. Riley, Kans., to Cav. Board, Ft. Riley, Kans.

Captain Robert W. Castle, from Ft. Riley, Kans., to C. of Cav. Off., Washington, D. C.

Lieutenant Durland E. Clark, Jr., to S. C. Rep. Tr. Cen., Fort Monmouth, N. J.

Second Lieutenant Roy J. Clinton, prior orders amended, to 4th Cav., Ft. Meade, S. Dak.

Lieutenant Edward A. Cockey, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Captain Robert C. Cockran, from Ft. Knox, Ky., to Off., C. of C., Kansas.

First Lieutenant Haskett L. Conner, Jr., from Ft. Benning, Ga., December 17, to 1st Cav. Div., Ft. Bliss, Tex.

Lieutenant Colonel Leo B. Conner, det., G. S. C., December 15, to 1st Armored Div., Ft. Knox, Ky.

Second Lieutenant Philip G. Connor, from Ft. Brown, Tex., to 2nd Interceptor Comd., Ft. Lawton, Washington.

Colonel Paul H. McG. Converse, prior orders revoked, from Washington, D. C., to Off., P. M. G., Arlington Cantonment, Va.

Captain Ira D. Cope, to Air Serv. Comd., Wellston, Ga.

First Lieutenant John K. Cunningham, from Ft. Myer, Va., December 10, to Off., C. of S., Washington, D. C.

First Lieutenant Leander A. Dailey, from Arlington Cantonment, Va., December 17, to 1st Infantry Div., Ft. Devens, Mass.

Second Lieutenant Howard F. Davis, Ft. Riley, Kans., to Cav. Rep. Tr. Cen., that station.

Captain Frank J. Day, from Ft. Jackson, S. C., to M. P. School, Arlington Cantonment, Va.

Captain Richard E. S. Deichler, from Olmsted Field, Pa., to Hqs., Army Air Forces, Washington, D. C.

Colonel Calvin De Witt, Jr., relieved detail as member of G. S. C., assignment W. D. G. S., and office, C. of S., Washington, D. C.; assigned New York Port of Embarkation.

Lieutenant Samuel W. Dobyns, to Cav. Det., Ft. Myer, Va.

Captain Wm. D. Dorbritz from Ft. McIntosh, Texas, to 119th Obs. Sq., Ft. Dix, N. J.

Captain John K. Dufton, to 4th Interceptor Comd., March Field, Riverside, Calif.

Lieutenant Colonel Frederick F. Duggan, from Ft. Knox, Ky., to San Francisco Port of Embarkation, Fort Mason, Calif.

Second Lieutenant Louis Dups, from Fort Devens, Mass., December 26, to Off., C. of S., Washington, D. C.

Captain James G. Earnest from Brooks Field, Tex., to 91st Obs. Sq., Pine Camp, New York.

Captain Charles L. Ebert, Camp Forrest, Tenn., to 128th Obs. Sq., that station.

Major Charles H. Edwards, to I. G. D., Hq., Second Army, November 25.

Lieutenant Dan L. Evander, to 2d Interceptor Comd., Ft. Lawton, Washington.

Lieutenant Colonel H. E. Featherstone will be retired for physical disability December 31st; relieved Fort Sam Houston.

Lieutenant Colonel Herbert E. Featherstone, to active duty, January 1, date following retirement, to Central Catholic H. S., San Antonio, Tex.

Captain Daniel C. Fahey, from Ft. Riley, Kans., to Off., C. of Cav., Washington, D. C.

Second Lieutenant F. C. Fitzpatrick's orders further amended to assign him 4th Cav., Fort Meade, S. Dak., upon completion of basic horse and mechanical course, Cav. Sch., Fort Riley.

Lieutenant Colonel L. C. Frizzell, relieved Hq., IV Army Corps, Jacksonville, January 5; assigned 3d Cav., Fort Myer.

Lieutenant Colonel James V. Gagne, from Ft. Knox, Ky., to home to await retirement.

First Lieutenant Michael R. Galland, from Ft. Knox, Ky., December 21, to inactive status.

First Lieutenant Kenneth E. Gardner, prior orders amended, "First Lieutenant Kenneth E. Gardiner."

Major Edwin P. Geesey, Washington, D. C., det., in G. S. C.

Captain James C. Gentle, Ft. Riley, Kans., to faculty, Cav. Sch., that station.

Major Alexander George, from Panama Canal Dept., to 56th Cav. Brig., Ft. McIntosh, Tex.

Captain John F. Gibbons, Jr., from Brooks Field, Tex., to Air Service Comd. Subdepot, Enid, Okla.

Brigadier General Frederick Gilbreath, to comd., San Francisco Port of Embarkation, Ft. Mason, Calif.

Lieutenant James E. Glover, to 1st Photo Group, Bolling Field, Washington, D. C.

Lieutenant Clifford H. Gray, Jr., to 4th Air Support Command, Hamilton Field, Calif.

Lieutenant Billy G. Griffith, from MacDill Field, Fla., to A. C. R. C. Maxwell Field, Ala.

Lieutenant Nelson S. Groome, to Cav. Det., Ft. Myer, Va.

Lieutenant Robert E. Haegelin, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Preston D. Hale, from Ft. McIntosh, Tex., to 59th Obs. Group, Ft. Dix, N. J.

Second Lieutenant Wesley B. Harrell, from Ft. Clark, Tex., to sta. comp., A. C. A. F. S., Mission, Tex.

Major Thomas L. Harrold, from Hartford, Conn., January 31, to 2d Cav. Div., Ft. Riley, Kans.

Second Lieutenant Nathan Hayward, Jr., from Indiantown Gap, Pa., to Off., C. of E., Washington, D. C.

Lieutenant Colonel Gordon J. F. Heron, from Columbus, Ohio, to Hartford, Conn.

First Lieutenant Walter J. D. Hewitt, from Ft. Riley, Kans., to 56th Cav. Brigade, Ft. McIntosh, Tex.

Captain Adolphus K. Heyner, from Fort Hayes, Ohio, to Off., J. A. G., Washington, D. C.

Captain Wm. M. Hill, to Air Serv. Comd., Sacramento, Calif.

Captain Geo. W. Hoar, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Everett M. Hockwald, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Chas. T. Holmes, to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Henry B. Holmes, III, to S. C., Rep. Tr. Cen., Fort Monmouth, N. J.

Captain Luther A. Holmes, from Ft. Riley, Kans., to Armd. Force Sch., Ft. Knox, Ky.

Lieutenant Colonel J. D. Hood, relieved O. R., 2d C. A., New York City; detailed Univ. of Illinois, Urbana.

Captain Ernest C. Hudgins, Jr., from Ft. Knox, Ky., to Off. C. of S., Washington, D. C.

Lieutenant Pierce P. Hurley, 59th Obs. Group, Ft. Dix, N. J.

Lieutenant Colonel Nelson M. Imboden, retired, January 31, at own application.

First Lieutenant Milton J. Ingeman, Ft. Knox, Ky., to post QM., that station.

Lieutenant Colonel Wm. R. Irvin, Fort Bliss, Texas, to 7th C. A. S. C., Ft. Riley, Kans.

Captain Wm. A. Johnson, from Ft. McIntosh, Texas, to 101st Sq., Camp Edward, Mass.

Lieutenant Wm. E. Johnson to 1st Interceptor Comd., Windsor Locks, Conn.

Major Malcolm D. Jones, from Ft. Knox, Ky., to Army Air Forces, Washington, D. C.

Lieutenant Colonel Marcus E. Jones, from Ft. Riley, Kans., to 4th Motorized Div., Ft. Benning, Ga.

First Lieutenant William P. Jones, Jr., Ft. Riley, Kans., to 2d Cav. Div., that station.

Lieutenant Michael P. Jury, to 1st Interceptor Comd., Windsor Locks, Conn.

Major Roy D. Keehn, Jr., from Camp Livingston, La., to faculty, Cav. Sch., Ft. Riley, Kans.

Second Lieutenant Richard D. Kelly, prior orders revoked, from Camp Polk, La., November 25, to S. C. Rep. Tr. Cen., Fort Monmouth, N. J.

Lieutenant Wm. J. Kemp, to 26th Obs. Group, Providence, R. I.

Major Stephen J. Kennedy, from Washington, D. C., November 30, to inactive status.

Lieutenant Carlton C. Keyes, to Air Serv. Comd., Middletown, Pa.

Captain William N. Kirkpatrick, Ft. Bliss, Tex., November 15, to 16th QM Sqdr., that station.

Captain Clen L. Laffer, from Camp Bowie, Tex., to sta. comp., A. C. A. F. S., Midland, Tex.

Major Clarence J. Lambert to A. C. A. F. S., Midland, Tex.

Major Walter R. Lee, to A. C. A. F. S., to Midland, Tex.

Lieutenant Frank B. Leinbach, Air Serv. Comd., Sacramento, Calif.

Captain Furman H. Limburner, to 1st Photo Group, Bolling Field, Washington, D. C.

First Lieutenant Robert B. Lincoln, from Pine Camp, N. Y., February 11, to inactive status.

Captain Russell C. Lord, from Washington, D. C., Januarv 7, to faculty, MP Sch., Arlington Cantonment, Va.

Lieutenant Henry M. McAleenan, 119th Obs. Sq., Ft. Dix, N. J.

First Lieutenant Warren L. McKinney, from Indiantown Gap, Pa., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Cornelius A. McManus, Air Serv. Comd., Sacramento, Calif.

Major Paul MacK. Martin, from Ft. Riley, Kans., to Hq., 9th Army Corps, Ft. Lewis, Wash.

Lieutenant Colonel Paul J. Matte, from Ft. Oglethorpe, Ga., to 1st Cav. Div., Ft. Bliss, Tex.

Lieutenant Edward J. Meegan, to 119th Obs. Sq., Fort Dix, N. J.

Lieutenant Colonel Harry C. Mewshaw, from Ft. Bliss, Tex., to Cav. Rep. Tr. Cen., Ft. Rilev, Kans.

Major J. A. Michela, appointed to temporary rank of lieutenant colonel, while assigned as military attaché to U. S. S. R.

First Lieutenant Hope C. Miles, from Washington, D. C., to New York, N. Y.

Captain Wm. J. Miles, from Fort McIntosh, Texas, to 1st Air Support Comd., Mitchel Field, New York.

Second Lieutenant John Millikin, Jr.'s orders further amended to assign him 2d Cav. Div., Fort Riley, upon completion of temporary duty as student, basic horse and mechanical course, Fort Riley.

Second Lieutenant Charles E. Moore, Jr., from Fort Myer, Va., to 6th Cav. Regt., Ft. Oglethorpe, Ga.

Captain Edward C. Moore, from Ft. McIntosh, Texas, to 1st Air Support Comd., Mitchel Field, N. Y.

Major George B. Morse, from Springfield, Ill., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Colonel H. A. Myers, detailed as member of G. S. C.; assigned G. S. with troops, and with G. S. C., Hq., 4th C. A., Atlanta.

Lieutenant Franklin W. Nicholai to 2d Interceptor Comd., Ft. Lawton, Wash.

Captain Delk M. Oden, from Ft. Riley, Kans., to 4th Armored Div., Pine Camp, New York.

Lieutenant Edward P. O'Kane, to 1st Photo Group, Windsor Locks, Conn.

Lieutenant Lockwood M. Pennell, to Tow Target, Det., Manchester, N. H.

Lieutenant Cornelius Perry, II, to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Colonel Donald S. Perry, from Washington, D. C., January 20, to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Lawrence R. Pierce, to Tow Target Det., Mitchel Field, N. Y.

Lieutenant Colonel Frederick R. Pitts, from Ft. Knox, Ky., to Army Air Forces, Washington, D. C.

Captain Charles M. Pollack, to 2d Interceptor Comd., Ft. Lawton, Wash.

First Lieutenant Chas. E. Pratt, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Robert Ranlet, Jr., to Tow Target Det., Manchester, N. H.

Lieutenant Colonel George W. Reade, Jr., from Ft. Knox, Ky., to G. S. C., Hq., I Armd. Corps, that station.

Captain Jules V. Richardson (1st Lt.) temp. appointment as Captain terminated, December 2, from Camp Polk, La., to home to await retirement.

Lieutenant Chas. B. Roberts, to 4th Inceptor Comd., March Field, Calif.

Lieutenant Walter O. Roney, to 4th Inceptor Comd., March Field, Riverside, Calif.

First Lieutenant Broadford Ross, from Ft. Lewis, Washington, to Off., P. M. G., Washington, D. C.

Major John L. Ryan, Jr., from Ft. Knox, Ky., det., to G. S. C.

Lieutenant Elwood F. Ryder, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Lieutenant Edward H. Schroeder, to Air Serv. Comd., Sacramento, Calif.

Second Lieutenant Richard P. Scott, prior orders amended, to 2d Cav. Div., Ft. Riley, Kans.

Second Lieutenant Charles R. Shannon, from Ft. Knox, Ky., December 13, to 91st Obs. Sqdn., Pine Camp, N. Y.

Lieutenant Colonel V. F. Shaw, now on duty in office, C. of S., Washington, D. C., is detailed as member of G. S. C. and assigned W. D. G. S.

Lieutenant Ralph G. Shank, to Air Serv. Comd., Wayne Co. Airport, Romulus, Mich.

Captain S. D. Slaughter, Jr., Ft. Riley, Kans., to 2d Cav. Div., that station.

Second Lieutenant Leon R. Slocum, from Ft. Devens, Mass., to sta. comp., A. C. Rep. Tr. Cen., Maxwell Field, Ala.

Lieutenant Edward T. Smith, to Tow Target Det., Manchester, N. H.

Lieutenant Colonel G. I. Smith, relieved office, C. of Cav., Washington, D. C., assigned 2d Cav. Div., Fort Riley.

Captain Lathrop E. Smith, from Camp Polk, La., to Off., C. of Cav., Washington, D. C.

Captain David T. Stafford, from Fort McIntosh, Texas, to Air Serv. Comd., Sacramento, Calif.

First Lieutenant Alonzo F. Stark, from Ft. Riley, Kans., to 4th C. A. S. C., Fort Oglethorpe, Ga.

Lieutenant Colonel H. P. Stewart's orders releaving him 3d C. A. S. C., Fort G. G. Meade, Md., and assigning him 3d Cav., Ft. Myer, revoked.

Lieutenant Colonel O. R. Stillinger, relieved 1st Cav. Div., Fort Bliss; assigned S. F. Port of Embarkation, Fort Mason.

Major John H. Stodter, Ft. Riley, Kans., to 2d Cav. Div., that station.

Major Thomas F. Taylor, from Ft. Oglethorpe, La., to student Naval War College, Newport, R. I.

Second Lieutenant Wentworth J. Tellington, from Governors Island, N. Y., to U. S. M. A., West Point, N. Y.

Colonel Arthur P. Thayer, from Ft. Leavenworth, Kans., December 5, to G. S. C., Hq., Second Army, Memphis, Tenn.

Major H. J. Theis, detailed as member G. S. C.; assigned G. S. with troops, and with G. S. C., 1st Cav. Div., Fort Bliss.

Lieutenant John H. Trull, 91st Obs. Sq., Pine Camp, N. Y.

Colonel A. H. Truxes, relieved 6th Cav., Fort Oglethorpe; assigned Hq., 4th C. A., Atlanta.

First Lieutenant W. L. Turner, relieved 2d Cav. Div., Fort Riley; assigned 4th Armored Div., Pine Camp, N. Y.

Lieutenant Ben. T. Wade, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Lieutenant Colonel Thomas D. Wadelton, retirement revoked.

Captain Jesse L. Waite, Indiantown Gap, Pa., to Army Air Forces, Washington, D. C.

Captain Edwin R. Wallace, to 4th Interceptor Comd., March Field, Calif.

First Lieutenant Alan MacN. Warfield, from Ft. Benning, Ga., December 31, to Off., C. of S., Washington, D. C.

Lieutenant Harold F. Weidner, to 1st Photo Group, March Field, Riverside, Calif.

Lieutenant John P. Wheeler, to Air Serv. Comd., Wellston, Ga.

Colonel Frank L. Whittaker, from Ft. Jackson, S. C., November 25, to Hq., 4th Army, Presidio of San Francisco, Calif.

First Lieutenant Leslie R. Wilcox, prior orders amended, January 8, 1942, to 4th Armd. Div., Pine Camp, N. Y.

Lieutenant Colonel Candler A. Wilkinson, from Ft. Riley, Kans., January 2, to Off., in charge, South Central Remount Area, San Angelo, Texas.

Lieutenant Colonel Ernest A. Williams, from Washington, D. C., to 1st Cav. Div., Ft. Bliss, Texas.

Major James S. Williams, from Indiantown Gap, Pa., January 9, to faculty, S. C. School, Ft. Monmouth, N. J.

Major Andrew W. Willis, from Ft. Lewis, Wash., to sta. comp., A. C. B. F. S., Moffett Field, Calif.

Major Arthur N. Willis, from Camp Seeley, Calif., to 7th C. A. S. C., Ft. Riley, Kans.

Lieutenant Benj. D. Willis, from Ft. Devens, Mass, to A. C. R. C., Maxwell Field, Ala.

Captain Arthur McD. Wilson, III, from Ft. Benning, Ga., to Off., Chief of Morale Branch, Washington, D. C.

Lieutenant Earl S. Wilson, to 1st Photo Group, March Field, Riverside, Calif.

Lieutenant Kenneth C. Willson, to 2d Interceptor Comd., Ft. Lawton, Wash.

Captain Wm. J. Wiseheart, from Ft. McIntosh, Texas, to Tow Target Det., Mitchel Field, N. Y.

Captain Carroll Wright, from Camp Polk, La., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Major W. W. Yale, relieved office, C. of Cav., Washington, D. C., December 6; detailed as member G. S. C.; assigned G. S. with troops, and Hq., 1st Cav. Div., Fort Bliss; to report for temporary duty at Fort Lewis; previous orders revoked.

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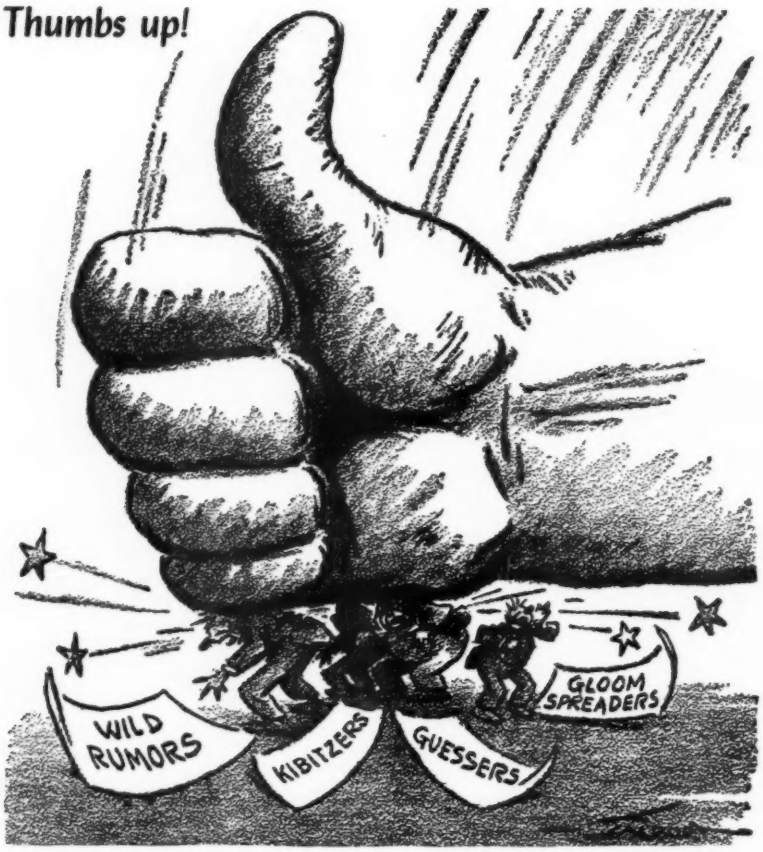
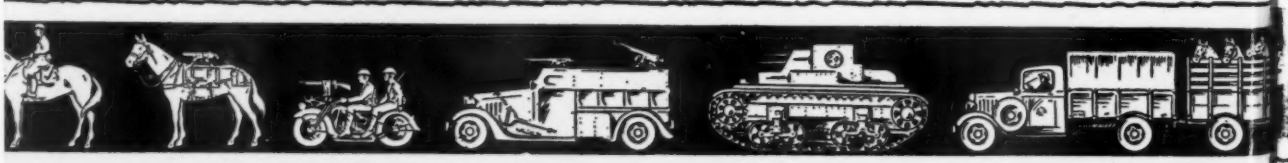
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